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CHEMOTHERAPY IN SURGERY

JOHN S. LOCKWOOD, M.D.
New York

On Oct. 5, 1936, a leading orthopedic surgeon of New York opened the hip joint of an 11 year old boy in order to reduce the deformity resulting from a traumatic separation of the epiphysis of the neck of the femur. The operative procedure went smoothly; the wound was closed without drainage; a plaster spica was applied, and the boy was returned to the ward in good condition. However, twenty-four hours later he suddenly had a chill accompanied by a sharp rise in temperature and pulse rate, and appeared acutely ill. Inspection of the wound area disclosed no abnormalities, but a blood culture showed heavy growth of hemolytic streptococci. The surgeon was thus confronted with the problem of a fulminating hemolytic streptococcus infection, presumably originating at the operative site, with invasion of the blood stream and with every prospect of a fatal outcome; should a miraculous recovery from the infection occur, the patient would certainly be crippled by destruction of the epiphysis and ankylosis of the hip joint. It happened that the orthopedist had returned from Europe only a few days before and while on the boat had learned from a young fellow surgeon of the success which was then being obtained in England with the new dye azosulfamide ("neoprontosil") and its derivative, sulfanilamide, in the treatment of streptococcic puerperal sepsis and erysipelas. Remembering that his informant had expressed an intention to carry out a clinical trial of the sulfonamide compounds in surgical infections at another hospital in New York, the orthopedist called him to suggest that his patient would offer a critical test of any drug with supposedly antibacterial capabilities. A sulfonamide drug was administered without delay, and within forty-eight hours the patient had dramatically improved without the necessity to reopen the hip joint; temperature and pulse had returned to nearly normal levels, and blood cultures had become negative. One week later a collection of pus containing hemolytic streptococcus was evacuated from the superficial layers of the wound. The wound went on to heal without any bone sequestration. A follow-up examination ten years later showed that the patient had regained full function of the hip and that no disturbance in the growth of the femur had appeared.

The foregoing episode is recounted on this occasion only because it concerns what is believed to have been the first instance, at least in this country, when a fulminating postoperative infection of this type was successfully treated with a sulfonamide drug. Similar episodes are now part of the experience of every surgeon. The world's research laboratories have brought to him a bewildering succession of new drugs of increasing scope and usefulness in his war on sepsis; not only has the risk of all major surgical procedures been significantly lessened through the use of chemotherapeutic agents in the prevention and treatment of adventitious infections of operative wounds, but the surgeon is now enabled to treat most of the established infections in his field by a combination of surgical procedures and chemotherapy, rationally timed and adapted to the bacteriologic and pathologic conditions peculiar to each case. In general, the infections of living tissues and of the fluids which bathe them respond to chemotherapy alone, the rate and magnitude of the response depending on the vascularity of the area and the susceptibility of the infecting organism; operative procedures, when necessary, are directed principally toward aiding the body in the removal of tissue which through local necrosis has become, in effect, a bacteria-laden foreign body, and secondarily toward plastic correction of the consequences of loss of tissue. Of course the requirements of physiologic supportive treatment in toxemia and shock must be met, regardless of the specific treatment employed.

Such a "thumbnail" summary perhaps oversimplifies the present status of therapy in surgical infections, but it serves quite fairly to depict the revolutionary changes in surgical thought and practice relating to infections which have been telescoped into the final decade of the centennial period of medical progress of the American Medical Association.

In order to present in broad terms the present possibilities and limitations of chemotherapy in surgical infections, I would like to submit the following outline, which contrasts and compares several categories of surgical disorders in which chemotherapeutic agents have been employed, with varying degrees of success. This will afford an opportunity to interpolate a few comments regarding choice and method of administration of the several drugs at the surgeon's disposal.

USE OF CHEMOTHERAPEUTIC AGENTS IN PREVENTION OF INFECTIOUS COMPLICATIONS

1. *Prevention of Infection in Accidental Wounds and Burns.*—During the recent war, civilian research under controlled conditions [1] and a compilation of military experiences [2] demonstrated a limited but definite field of usefulness for systemically administered sulfonamide drugs and penicillin in preventing invasive wound sepsis from streptococcic and staphylococcic infections, particularly when the drugs are used as an adjunct to properly timed and executed surgical treatment. The course of healing of the contaminated accidental wound

From the Department of Surgery, Columbia University and the Surgical Service of the Presbyterian Hospital.
Read in a panel discussion on Antibiotic Therapy in the General Scientific Meetings at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1947.

1. Meleney, F. L.: Ann. Surg. **118**: 171, 1943; Surg., Gynec. & Obst. **80**: 263, 1945.
2. Notes on Care of Battle Casualties, Bull. U. S. Army M. Dept., **4**: 245, 1945.

or burn is not demonstrably benefited by chemotherapeutic agents, whether systemically administered or topically applied. However, the highly advantageous performance of early secondary closure of major soft part wounds and compound fractures which have been debrided primarily is rendered safer as a result of the protection against invasive infection afforded by penicillin and sulfadiazine.

2. *Prevention of Infectious Postoperative Complications.*—(*a*) Infections of Operative Wounds: What has been said concerning chemotherapy in accidental wounds applies also to contaminated operative wounds. Complications in wound healing depend in large part on factors which antibacterial drugs cannot be expected to influence. However, the severity of the consequences of operative wound sepsis will often be reduced by chemotherapy, whether commenced before or after signs of infection appear. The practice of dusting or washing the operative wound with an antibacterial formula should be resorted to, if at all, in only those special instances when the wound is known to be heavily contaminated and when the formula is rationally adapted to the contaminating organisms;[3] the routine use of a sulfonamide powder in every wound reflects both a lack of confidence in one's aseptic technic and an ignorance of the mechanisms of drug action and wound repair.

(*b*) Surgery of the Gastrointestinal Tract: The ability of orally administered succinylsulfathiazole,[4] phthalylsulfathiazole[4] and streptomycin[5] greatly to reduce the bacterial content of feces justifies assigning to these drugs the principal chemotherapeutic role in prevention of peritonitis as a complication of surgery of the colon. The employment of antibacterial drugs by systemic routes in preventing peritonitis from contamination and leakage incident to surgical operations on the stomach and intestines is challengeable on theoretic grounds and not yet supported by valid statistical evidence, but will undoubtedly continue as a routine practice by many surgeons, since the incidence of toxic reactions is low, the drugs give comfort to the surgeon himself and they may help to minimize the severity of pulmonary complications as well as peritonitis. As a result of reserving antibacterial drugs for only the more difficult and complicated resections, the incidence of complications and the operative mortality following gastrointestinal operations in one hospital happen actually to be greater among patients who have received chemotherapy than among those who have not! However, one must concede the probability that chemotherapy has played a significant part in the progressive reduction in mortality following gastrointestinal operations which has taken place during the past decade. There is certainly great need for extensive alternate case study of this problem, in which so many variables are concerned.

(*c*) Surgery of the Lung: The removal of a bronchiectatic chronically abscessed lung leads inevitably to some degree of contamination of the pleural surfaces, mediastinum and uninvolved lung with infected exudates containing actively pathogenic organisms. Therefore, the preoperative and postoperative use of penicillin in such cases is based on sound theoretic grounds, and there is considerable clinical evidence of its effectiveness in preventing infectious postoperative complications.[6] It may be that streptomycin should be coupled with penicillin in this situation because of the possibility that the two together may exercise a synergistic action against anaerobic species relatively resistant to either drug alone. Another practical method of offsetting the relative resistance of the organisms of the respiratory tract to antibiotics is to instill solutions of the drugs in high concentrations into the pleural cavity during and after the contaminating surgical procedure. Furthermore, the inhalation of finely atomized solution of penicillin has been advocated[7] as an additional means of reducing bronchial infection prior to lobectomy and pneumonectomy.

It is reasonable to hope that streptomycin will prove to be a valuable adjunct to surgical treatment in selected cases of pulmonary tuberculosis—the drug helping to limit spread of the pneumonitic component while the localized and drug-resistant areas of caseation and necrosis are in process of removal. However, extensive further experience and prolonged follow-up will be required to determine whether this hope will be justified.

INFECTIONS WHICH MAY RESPOND TO CHEMOTHERAPY ALONE

1. Cellulitis, lymphangitis, bacteremia.[8]
2. Acute hematogenous osteomyelitis.[9]
3. Suppurative arthritis.[8]
4. Acute thoracopulmonary suppuration.[10]
5. Spreading peritonitis.[11]
6. Furuncles and carbuncles.[8]

In this type of infection surgery is deferred until specific objectives are clearly defined.

These varied lesions possess as a common denominator an early stage during which the bacterial invaders are multiplying in relatively intact and well vascularized tissues; the cellular defenses of the host have not yet been overwhelmed, either locally or throughout the body; the organisms capable of producing these invasive lesions are generally susceptible to one or more of the drugs at our disposal, and surgical intervention at this stage not only will accomplish little of direct value, but may be actually hazardous. Prior to 1936 the surgeon was frequently forced into early operative intervention for lack of any other means of combating a desperate situation. Occasionally a brilliant therapeutic result was achieved, but there is reason to suspect that in many cases untimely surgery administered a coup de grâce either to the vitality of the involved tissue or to the patient as a whole.

Patients with invasive infections need no longer be rushed to the operating room as emergencies. The drug of choice is given in adequate doses, usually penicillin in doses of from 400,000 to 1,200,000 units per day, supplemented in cases of peritonitis by 1.5 to 2 Gm. of streptomycin; other supportive treatment is given as may be indicated by the patient's condition; the infected part is placed at rest, and the course of the disease is observed. If the infection involves a joint or the pleural cavity, or if there is an accessible collection of fluid in a soft part, careful aspiration of the pus

3. Howes, E. L.: Surg., Gynec. & Obst. **83**: 1, 1946.
4. Poth, E. J.: Surgery **17**: 773, 1945. Poth, E. J.; Ross, C. A., and Fernandez, E. B.: ibid. **18**: 529, 1945.
5. Ravdin, I. S., and Zintel, H. A.: Tr. Am. S. A., 1947, to be published.
6. White, W. L.; Burnett, W. E.; Bailey, C. P.; Rosemond, G. P.; Norris, C. W.; Favorite, G. O.; Spaulding, E. H.; Bondi, A., Jr., and Fowler, R. H.: J. A. M. A. **126**: 1016 (Dec. 16) 1944.
7. Olsen, A. M.: Proc. Staff Meet., Mayo Clin. **20**: 184, 1945. Barach, A. L.; Silberstein, F. H.; Oppenheimer, E. T.; Hunter, T., and Soroka, M.: Ann. Int. Med. **22**: 485, 1945.
8. Spink, W. W., and Hall, W. H.: Ann. Int. Med. **22**: 510, 1945. Harford, C. G.; Martin, S. P.; Hageman, P. O., and Wood, W. B., Jr.: J. A. M. A. **127**: 253 (Feb. 3) 1945.
9. Altemeier, W. A., and Helmsworth, J. A.: Surg., Gynec. & Obst. **81**: 138, 1945.
10. Fatti, L.; Florey, M. E.; Joules, H.; Humphrey, J. H., and Sakula, J.: Lancet **1**: 257 and 295, 1946.
11. Crile, G., Jr.: Surg., Gynec. & Obst. **83**: 150, 1946.

should be performed and the volume withdrawn should be partially replaced with solution containing about 5,000 to 20,000 units of penicillin per cubic centimeter. Operative intervention will usually be indicated by an interruption in the trend toward recovery or by failure to obtain adequate drainage by other means. It can usually be carried out at a time of election, when the patient has regained satisfactory physiologic balance. The surgical procedures are then directed toward drainage or excision of well localized abscesses, removal of devitalized tissue and sequestrums and restoration of the consequences of tissue destruction. The continuation of systemic and local chemotherapy following such operations appears to protect against further spread of the infection and shortens the period required for healing.

INFECTIONS WHICH CERTAINLY REQUIRE BOTH CHEMOTHERAPY AND SURGERY

1. Acute appendicitis with local peritonitis.[11]
2. Chronic osteomyelitis.[12]
3. Infections of the hand and foot, with or without diabetes.[13]
4. Bronchiectasis; chronic empyema; pulmonary abscess.[14]
5. Gas gangrene.[15]
6. Chronic granulomas, including actinomycosis.[16]

At first glance, the diseases included in this category might seem to possess little in common to serve as a basis for assignment to them of a common therapeutic regimen. However, in all of them the bacterial flora are often relatively resistant to chemotherapeutic agents; their pathologic characteristics are such as to limit transport of effective concentrations of drugs to the site of bacterial proliferation, and final recovery from each depends in large part on proper surgical treatment of the main focus of the infection. In all of them chemotherapy will be a helpful adjunct, both before and after operation, but cannot be expected to occupy the principal role, as will often be the case in the diseases of the preceding category.

In acute appendicitis the factors of tissue necrosis and fecal soiling can only be met by prompt surgical procedures; chemotherapy should be used only to help prevent spread of infection subsequent to the operation. The most effective combination of penicillin, streptomycin and sulfonamide drug has not yet been clearly worked out, but all three drugs may be indicated in cases of severe disease. In chronic osteomyelitis permanent recovery depends on removal of sequestrums and obliteration of bone cavities with uninfected tissue and provision of a covering of healthy skin; the use of penicillin systemically and locally is of great assistance in achieving these ends by reducing to a minimum the number of bacteria which the healing wound must contend with after its closure. Careful study of the bacterial flora of the infected tissue will aid greatly in selection of the appropriate antibacterial agent. Infections of the sheaths, bursae and fascial spaces of hands and feet usually require early surgical drainage, coupled with topical and systemic chemotherapy. In chronic pulmonary suppuration, chemotherapy reduces the danger of severe operative complications, but the problem of restoring the patient to health is largely one for surgical attack. Gas gangrene most often develops in association with injury to main blood vessels of the extremities; although intensive treatment with penicillin may limit the spread of anaerobic cellulitis, the control of toxemia and shock will depend largely on the prompt performance of appropriate surgical and supportive procedures. Nothing in the experience of military surgeons during the past war would justify expectant, nonoperative treatment of a patient with gas gangrene, in the hope that spread of the disease might be checked by chemotherapy alone. Gangrenous muscle must be removed without delay. Finally, in actinomycosis and chronic granulomatous lesions due to drug-sensitive organisms, the achievement of permanent recovery seems almost always to depend on excision of the major focus of the disease, with chemotherapy an effective adjunct in preparing the patient for operation and in preventing reestablishment of the infection within the operative wound.

SUMMARY

The use of chemotherapeutic agents in surgical infections has developed along three principal lines: (1) preventive use, in which the drugs are employed to reduce the infectious hazards of surgical intervention in contaminated operative fields; (2) primary therapeutic use, in which logic and clinical experience justify principal reliance on chemotherapeutic control of the infection, with surgical procedures directed toward limited residual elements in the disease, and (3) secondary therapeutic use, in which surgical treatment remains the primary weapon and the antibacterial drugs serve only as helpful adjuncts during the preoperative and postoperative periods.

12. Lyons, C.: J. A. M. A. **123**: 1007 (Dec. 18) 1943.
13. Florey, M. E., and Williams, R. E. O.: Lancet **1**: 73, 1944. Butler, E. C. B., in Fleming, A.: Penicillin: Its Practical Application, Philadelphia, The Blakiston Company, 1946, p. 211.
14. Footnote 10. Kay, E. B., and Meade, R. H., Jr.: J. A. M. A. **129**: 200 (Sept. 15) 1945.
15. Porritt, A. E., and Mitchell, G. A. G., in Fleming, A.: Penicillin: Its Practical Application, Philadelphia, The Blakiston Company, 1946, p. 162.
16. Dobson, L., and Cutting, W. C.: J. A. M. A. **128**: 856, 1945.

DEVELOPMENT OF BACTERIAL RESISTANCE TO ANTIBIOTICS

C. PHILLIP MILLER, M.D.
Chicago

The development of resistance to the antibiotics is a phenomenon of great theoretic interest to the bacteriologist, and it may some day become a matter of major concern to the clinician. I shall limit my discussion to penicillin and streptomycin, the two antibiotics which have been most intensively studied clinically and experimentally and about which, therefore, a good deal of information has accumulated.

One must bear in mind that susceptibility and resistance are relative terms. As customarily used, the term resistant is applied to a micro-organism when it requires more antibiotic to prevent its multiplication than most other strains of the same bacterial species.

In the case of penicillin, fortunately, few strains of the susceptible bacteria are resistant to concentrations ordinarily attainable in the blood of man. Some strains of staphylococci are comparatively resistant and a few are highly resistant. The highly resistant staphylococci owe this property to their ability to produce penicillinase, an enzyme which effectively inhibits the action of penicillin.[1] These producers of penicillinase are therefore resistant to high concentrations of the drug. Some of the early reports describing 10 to 15 per cent of staphylococci as being resistant to therapeutic doses were made at a time when dosage was much smaller than it is today.

From the Department of Medicine, University of Chicago.
Read in a panel discussion on Antibiotic Therapy in the General Scientific Meetings at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1947.
1. Spink, W. W., and Ferris, V.: Penicillin Inhibitor from Staphylococci Which Has Developed Resistance to Penicillin in the Human Body, Proc. Soc. Exper. Biol. & Med. **59**: 188-190, 1945.

Acquired resistance—that is, the development of resistance to penicillin by previously susceptible micro-organisms—is rarely observed clinically during the treatment of infection in man. There are two reasons for this: First, bacteria acquire resistance to penicillin so slowly that most infections have been brought under control before a detectable degree of resistance has had time to develop. Second, penicillin, now that it has become so plentiful, is usually administered in doses considerably in excess of the minimum required to control the infection under treatment. Except in rare instances, therefore, this excess provides a margin of safety adequate to cover any increase in resistance which might occur.

One must be careful not to be misled into the diagnosis of acquired penicillin resistance. Not infrequently infections are thought to have become resistant because they do not respond to penicillin therapy although they were caused by penicillin-sensitive organisms. In such instances, one must be sure that the infection is being maintained by the same strain which initiated it, for secondary infection with a penicillin-resistant micro-organism often accounts for failure of the drug to control an infection rather than the actual development of penicillin resistance.

Persistent gonorrheal urethritis, for example, may be ascribed to penicillin-resistant gonococci. Careful bacteriologic examination, however, will usually reveal that gonococci have been entirely eliminated by penicillin therapy and that the infection is being maintained by secondary invaders which are penicillin resistant. In other words, the gonococcic infection itself has been cured by penicillin but has been replaced by a secondary pyogenic infection. In such cases, incidentally, there is usually response to larger doses of the drug.

The literature contains very few reports presenting convincing evidence of actual increase in resistance to penicillin during the course of treatment.[2] There is no doubt, nevertheless, that micro-organisms can develop resistance to penicillin. This has been demonstrated experimentally by a number of investigators working with a variety of bacteria. In my own laboratory co-workers and I have raised the resistance of a strain of Meningococcus to such a level that it is able to grow abundantly on mediums containing 5,000 units per cubic centimeter, a ten thousand-fold increase. But this required one hundred and forty-seven serial transfers onto mediums containing increasing concentrations of the drug.[3]

It is also possible to demonstrate the development of penicillin resistance in vivo. When susceptible bacteria are inoculated into animals which are treated with subcurative doses of penicillin, the organisms can be isolated from the infected lesion or from the heart's blood and inoculated into other animals, and this procedure repeated. It is found that at each passage the animals will require treatment with slightly larger doses of penicillin, showing that the bacteria have acquired a certain degree of resistance to the drug. If this procedure is repeated many times a level of resistance will develop which will permit the bacteria to produce infection in spite of treatment with large doses of penicillin.[4] We have found, for example, that by this method the resistance of Meningococcus can be raised by serial passage through mice to very high levels, but resistance develops slowly just as it does on artificial culture mediums.[5]

These experimental findings confirm the clinical observation that when penicillin resistance does develop during the course of infection in man, it proceeds slowly and can ordinarily be overcome by sufficient increase in dosage. Fortunately, penicillin is a drug of such low toxicity that it can be given in enormous doses without danger to the patient.

In the case of streptomycin, on the other hand, bacteria acquire resistance at a much more rapid rate. It has been noted, for instance, that susceptible bacteria in the course of only two or three transfers on culture mediums acquire resistance of such a high degree that they are able to multiply on mediums containing as much as 75,000 units per cubic centimeter.[6] This finding coincides with the clinical observation that infections of the urinary tract in man must be controlled within a few days or they will become completely resistant to the maximum tolerated dosage of the drug.

In searching for an explanation of this rapid acquisition of streptomycin resistance, we have found recently that two resistant variants of Meningococcus develop which appear during the initial cultivation of a susceptible strain on mediums containing streptomycin in excess of ordinary bactericidal concentrations.

Both variants are completely resistant to streptomycin. One of them is virulent for mice, producing infections which cannot be controlled by the largest doses of the drug tolerated by the animal. The other variant, which appears only on relatively high concentrations, not only is resistant to streptomycin but possesses the surprising characteristic of requiring streptomycin for its growth. This variant multiplies abundantly on all concentrations of the drug but dies as soon as it is transferred onto mediums containing no streptomycin. In other words, streptomycin has become a growth requirement for this variant of Meningococcus. This is not a chance observation, for such streptomycin-dependent variants have been developed from eighteen strains of Meningococcus every time that they have been planted onto proper concentrations of the drug.[7]

This dependence on streptomycin is demonstrable in vivo as well as in vitro. When these streptomycin-requiring meningococci are inoculated into mice, infection does not occur unless the animals are treated with streptomycin. But mice inoculated with such meningococci and treated with large doses of streptomycin succumb to fatal sepsis, and meningococci can be recovered from their heart's blood, provided that the cultures are made on streptomycin-containing mediums. This fact demonstrates that these meningococci retain their dependence on streptomycin after they have multiplied within the body of an animal host and invaded its blood stream—a complete reversal of the customary action of a chemotherapeutic agent.[8]

I know of no clinical observation in which streptomycin-dependent organisms have been demonstrated—very likely because streptomycin-containing mediums have not been used for the cultivation of organisms from patients under treatment with this drug.

2. A recent review of the literature may be found in Kolmer, J. A.: Penicillin Therapy, New York, D. Appleton-Century Company, Inc., 1947.
3. Miller, C. P., and Bohnhoff, M.: Studies on the Action of Penicillin: VI. Further Observations on the Development of Penicillin Resistance by Meningococcus in Vitro, J. Infect. Dis. **81**: 147-156, 1947.
4. Miller, C. P., and Bohnhoff, M.: Studies on the Action of Penicillin: V. Virulence of Penicillin Resistant Strains of Meningococcus, Proc. Soc. Exper. Biol. & Med. **60**: 356-357, 1945.
5. Unpublished experiments by the author.
6. Miller, C. P., and Bohnhoff, M.: Streptomycin Resistance of Gonococci and Meningococci, J. A. M. A. **130**: 485-488 (Feb. 23) 1946.
7. Most of these experiments were supported jointly by the United States Navy, Office of Naval Research, and the University of Chicago.
8. Miller, C. P. and Bohnhoff, M.: The Development of Streptomycin Resistant Variants of Meningococcus, Science **105**: 620-621, 1947.

These streptomycin-dependent meningococci retain all of the ordinary properties of normal meningococci including sensitivity to penicillin.

Hall and Spink [9] have recently described a streptomycin-resistant strain of Brucella which grew better with streptomycin than without it, but was not dependent on the drug since it was able to grow on streptomycin-free mediums.

In summary then, penicillin resistance when it does develop proceeds slowly. It has not as yet become a serious clinical problem because most infections are brought under control before any appreciable degree of resistance has had time to develop and also because most patients at the present time receive doses of penicillin sufficiently in excess of the minimum required to take care of any increase in resistance which might occur during the course of their treatment.

Streptomycin resistance, on the other hand, can develop with great rapidity. This has been observed clinically as well as experimentally. It is probably due to the production by bacteria of streptomycin-resistant variants which arise by mutation. Such variants have been described for several bacterial species. In the case of Meningococcus, two streptomycin-resistant variants have been observed, one of which is remarkable in that it requires streptomycin for its growth in vitro and in vivo.

ANESTHESIA FOR ABDOMINAL SURGERY

EDWARD B. TUOHY, M.D.
Rochester, Minn.

The choice of an anesthetic agent or procedure for abdominal surgery is prefaced frequently by this question, "What do you use for operations on the gallbladder or what do you use for hysterectomy?" The same query might be applied to operations on the gastrointestinal tract or on almost any portion of the body. The answer cannot always be direct and simple. Certain surgeons, because of previous experience, have definite preferences regarding the choice of anesthesia for abdominal surgery. Likewise, anesthesiologists have their preferences, likes and dislikes. Either one of these may influence the other, and in some instances the patient offers a third opinion or request. This is particularly true in light of the popularity of "pentothal sodium"; many patients, because of hearsay or previous experience with anesthesia, request this agent.

I believe that the solution to this problem of the choice of type of anesthesia for abdominal surgery lies in proper understanding of a given situation by the anesthesiologist, the surgeon and, whenever possible, the patient. Proficiency in the administration and use of anesthetic agents and procedures, like surgical dexterity and judgment, comes from experience, study and a consideration of previous errors. There is no substitute, to my knowledge, for an experienced surgical team, and this means the surgeon, his assistants and the anesthesiologists. Most surgeons, I believe, would prefer to work each time with the same persons, particularly with the same anesthesiologists, if possible. Efficient anesthesia is not so much a matter of the particular agent or method of anesthesia used, provided that the surgeon knows the capabilities of the anesthesiologist and, I might add, provided that the reverse situation be true also, as it is a matter of choosing the type of anesthesia which, under a certain set of circumstances, will be safest for the patient.

EVALUATION OF THE PATIENT

All of the medical data pertinent to the individual patient should be available, and a discussion of the problem should be carried out by the surgeon and the anesthesiologist; then the patient should be informed that in the opinion of the surgeon and the anesthesiologist, such a type of anesthesia would be best for the operation required. This approach assures the patient that at least two persons are interested vitally in a problem which has given them considerable concern; namely, "How do I go to sleep, or do I?"

AGENTS AND METHODS OF ANESTHESIA

It is quite natural that some form of general anesthesia is requested by most patients for abdominal surgery, and unquestionably the greatest percentage of abdominal laparatomies are performed with the patient under general anesthesia, for which purpose ether is probably the main anesthetic agent. Nitrous oxide or, perhaps, ethylene is used as the induction agent. The almost universal safety of diethyl ether for children and adult persons makes it very popular. It is true that more nausea and vomiting attend its use than occur with cyclopropane or the combination of solution of tribromoethanol ("avertin") (rectally) with cyclopropane. The contraindications to ether are actually very few, and pulmonary tuberculosis (active) is probably the most definite. Cyclopropane, because it is pleasant to inhale, nonirritating and rapid in its action, is rather popular, particularly now that curaré can be used as an aid in obtaining surgical relaxation without resorting to the controlled method of respiration. Certain cardiac irregularities do develop in certain persons under cyclopropane anesthesia. These usually occur in the light planes of surgical anesthesia and are abolished when the depth of surgical anesthesia is increased. It is the consensus at the present time that if certain types of arrhythmia do occur the introduction of a little ether into the anesthetic mixture will usually abolish these cardiac irregularities. It is my opinion that prolonged administration of cyclopropane for abdominal surgery or for thoracic surgery should be watched carefully because of the fact that the systolic blood pressure, which has a tendency to be reasonably well maintained during surgical anesthesia with this agent, tends to fall rather abruptly after administration of the anesthetic agent is terminated. Not infrequently the patients enter into a state of hypotension which may reach the level of surgical shock within a few moments. This phenomenon does not occur, as a rule, during the shorter administrations of cyclopropane, particularly when the depth of surgical anesthesia is kept in either plane 1 or 2. I think that it is well to emphasize this point, that aberrations in blood pressure may follow the prolonged administration of cyclopropane and that precautions should be taken to prevent this drop in pressure. Intravenous administration of fluids should be started in sufficient time to prevent any pronounced deviation in blood pressure. Dextrose solutions, plasma or whole blood transfusions may be necessary. The advantage of using curare, or d-tubocurarine, with cyclopropane anesthesia for abdominal surgery lies in

9. Hall, W. H., and Spink, W. W.: In Vitro Sensitivity of Brucella to Streptomycin: Development of Resistance During Streptomycin Treatment, Proc. Soc. Exper. Biol. & Med. **64**: 403-406, 1947.

From the Section on Anesthesiology, Mayo Clinic.
Read before the Section on Anesthesiology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

the fact that this agent (curare) can be utilized to produce the muscular relaxation necessary to accomplish the surgical operation so that the depth of general anesthesia incident to the administration of cyclopropane can be kept at the level of plane 2 or slightly below.

The use of an intratracheal tube during the administration of any inhalation anesthetic agent has been established as an excellent means of maintaining an adequate airway for the patient, serves to minimize the amount of anesthetic agent required and provides a means of artificial pulmonary ventilation should this procedure be required. Either the nasal or oral route of intubation may be used. I believe that an intratracheal tube should be used in the majority of cases in which cyclopropane and curare are used in combination, inasmuch as momentary periods of apnea may occur in certain persons. The use of an intratracheal tube is a definite safety precaution.

The amount of curare, or d-tubocurarine, which may be required in individual cases varies. Curare should be administered intravenously in fractional doses just prior to the opening of the peritoneum in cases of abdominal laparotomy. At the time of the administration of curare the flow of anesthetic gases or vapors should be momentarily turned off and basal oxygen administration maintained. The pharmacologic effect of curare on respiratory volume can be noted by watching the breathing bag on the gas machine. When the respiratory excursions become definitely shallow one usually will note concomitantly that the abdominal muscles are also relaxed. The effect of d-tubocurarine usually lasts for twenty-five to thirty minutes. Not infrequently, when the operation has been completed and the peritoneum is to be closed, additional intravenous administration of this agent will be required. The same technic as that previously described should be used in this juncture. Again a word of caution is indicated concerning the use of curare to secure relaxation in closure of the abdomen. In certain persons who have had curare for closure a transient depression of respiration occurs after the closure of the abdomen. This is probably due to the fact that sensory and motor stimuli are no longer present and respiration is not reflexly activated by these stimuli. It is important, therefore, to watch the patient closely when he is returned to his room to make sure that an adequate airway is maintained and that adequate pulmonary ventilation continues. This sequence of events may be noted with ether and curare, nitrous oxide and curare, "pentothal sodium" and curare, or with practically any combination of these agents. In the event of physiologic overdose from curare, the administration of neostigmine (pharmacologic antidote) combined with the administration of oxygen by means of artificial pulmonary ventilation is indicated.

CONTINUOUS SPINAL ANESTHESIA

The advantages of the method of continuous spinal anesthesia in which a ureteral catheter or the Lemmon malleable needle is used are that (1) a relatively nontoxic agent may be administered intrathecally in divided doses as they are required, (2) this method prevents the tendency to administer the large initial doses which may be given when a single subarachnoid spinal injection is used and (3) it permits the surgeon to have practically unlimited operating time, thereby preventing unnecessary haste. The continuous method of spinal anesthesia is recommended in those persons who are suitable candidates for spinal anesthesia for the repair of ventral or inguinal hernia, for total cystectomy with transplantation of the ureters and for extensive operations on the gastrointestinal and biliary tracts. The main disadvantage of any type of spinal anesthesia for operations in the upper part of the abdomen is the relatively high incidence of nausea or vomiting. This does not hold true for operations in the lower part of the abdomen, as a rule. In my experience I have found that the judicious intravenous use of "pentothal sodium" will control this problem of nausea or vomiting. "Pentothal sodium" should not be administered, however, until the full extent of the action of the spinal anesthetic agent has been determined. By this I mean the dermatome level to which the anesthetic agent has risen in the subarachnoid space. Obviously, as respirations become shallow as a result of paralysis of the intercostal muscles incident to spinal anesthesia, one should be very cautious in administering "pentothal sodium." The ureteral catheter technic has been mechanically more satisfactory, in my experience, than that of the malleable needle, and it offers the additional advantages of allowing greater mobility of the patient, particularly for orthopedic operations, and of eliminating the requirement for a bulky mattress. Whereas various combinations of anesthetic agents, such as tetracaine ("pontocaine") hydrochloride and dextrose or other solutions of anesthetic agents lighter or heavier than the spinal fluid, are used for abdominal operations, it is my impression that for operations which are reasonably extensive, the continuous method of spinal anesthesia is sounder physiologically.

I think a mistake is made not infrequently in the use of "pentothal sodium" as a supplement to the inadequate spinal anesthesia which may be obtained when the single dose method is used. The situation is usually one in which the spinal aesthetic agent does not give motor and sensory effects at levels sufficiently high anatomically to encompass the limits of the incision. When this situation arises one usually ends up by using a fairly large amount of "pentothal sodium" and, more likely than not, by switching to some combination of inhalation anesthetic agents in addition to the agents already administered. This is usually an unsatisfactory situation for the surgeon, as is well known, not to mention the fact that it is embarrassing for the anesthesiologist, because the respiratory depression which is usually present after inadequate spinal anesthesia plus use of "pentothal sodium" is sufficiently marked that the introduction of an inhalation anesthetic agent is a slow and tedious process.

Regional block infiltration of the skin, subcutaneous tissue and fascia overlying the abdominal muscles is a method of anesthesia to be considered when surgical risk is great; the so-called abdominal wall block may be justifiably combined with light inhalation anesthesia or with the use of "pentothal sodium" or any one of several inhalation agents, with or without administration of curare. Certain surgeons have found that the use of regional block of the abdominal wall, plus infiltration of the parietal peritoneum and block of the anterior splanchnic nerves, has worked well for operations on the stomach and biliary tract. In certain

persons who are not of the robust, athletic type, this method of anesthesia is satisfactory. I believe that the success of this method depends chiefly on the cooperation of the patient and the diligence, skill and patience of the surgeon. Regional block of the abdominal wall, plus block of the anterior splanchnic nerves, is not satisfactory for operations on the lower part of the abdomen.

In bilateral intercostal nerve block by injection of the intercostal nerves in the anterior axillary line, the block usually includes the eleventh, tenth, ninth, eighth, seventh and sixth thoracic nerves. Five cc. of 1 per cent solution of "metycaine hydrochloride" with epinephrine is injected at each site. In patients who are not of the robust type this regional anesthetic procedure gives reasonably satisfactory anesthesia for operations on the upper part of the abdomen. It may be necessary to combine it with intravenous "pentothal sodium" anesthesia or with light gas-oxygen inhalation anesthesia.

SUPPORTIVE MEASURES IN ABDOMINAL SURGERY

The careful intravenous use of fluids, such as dextrose and saline solutions, and plasma and blood transfusions, needs little comment. Blood should be administered whenever the patient's condition seems to warrant it, and its use is contingent on the physical status of the patient prior to operation and on the amount of blood loss and surgical trauma during operation. Certain vasopressor agents, such as the soluble salts of ephedrine and phenylephrine hydrochloride ("neo-synephrine hydrochloride") are of definite service to help maintain blood pressure and capillary tone when used either alone or in conjunction with the intravenous use of various types of fluids. They should not be relied on entirely to maintain adequate circulating blood volume.

The anesthesiologist can be of definite service to the surgeon, particularly in gastric surgery, by his ability to introduce various types of stomach tubes during surgical anesthesia. The advantage of having a rubber tube in situ at the time of operation is vital to the postoperative convalescence following certain types of surgery. The ability to have these tubes accurately inserted while the patient is on the operating table rather than later when he is in his room, during the period of recovery, is of definite value.

Among the endoscopic procedures which the anesthesiologist should be able to offer is that of suction bronchoscopy. Not infrequently large amounts of mucus accumulate in the tracheobronchial tree during the course of the operation and, unless the mucus is adequately aspirated, the incidence of pulmonary complications usually rises. Bronchoscopic aspiration is not recommended in every case, obviously, but should be resorted to when there is definitely an excessive amount of mucoid material present during the administration of the anesthetic agent. The optimal time for carrying out this procedure is at the termination of the operation before the patient has regained his throat reflexes, but aspiration may be resorted to at any time during the postoperative period should excessive accumulations of mucus occur with or without evidences of atelectasis. This type of care, I believe, will gradually fall more and more into the hands of the qualified anesthesiologist. Additional supportive therapy in the form of oxygen administration should be used whenever necessary.

SUMMARY

The choice of anesthesia for abdominal surgery cannot be stated didactically. Of more importance than the anesthetic agent or procedure are the skill and judgment of the anesthesiologist. Of practically equal importance is the teamwork between the surgeon and anesthesiologist, which will serve to give the patient the safest anesthetic agent possible and in a sufficiently satisfactory manner so that the best surgical result can be accomplished.

General anesthesia has its own place as a choice of procedure in abdominal surgery. Likewise, regional anesthesia, including spinal, has its merits. Various agents, such as "pentothal sodium," curare and cyclopropane, can be employed in combination with other anesthetic agents and procedures. Each case should be evaluated and when possible the anesthesia "tailor made" for the operation to be done, the fact being kept in mind that the greatest safety to the patient is of first importance.

ABSTRACT OF DISCUSSION

DR. HARRY J. SHIELDS, Toronto, Canada: Dr. Tuohy has shown that while good results follow most technics no one may be made routine. Anesthetists are prone to adhere to technics from which they are experiencing good results and are reluctant to turn to those with which they are less familiar. It is axiomatic, however, that anesthesia as a science may not be permitted to become static; the modern anesthesiologist must meet the challenge forced on him by the accumulation of new knowledge from associated fields To ether and spinal anesthesia have been added cyclopropane and the intravenous use of barbiturates and the curare products, which while useful have not afforded a completely saisfactory solution to our problems. Ether administered by modern methods, particularly when intubation is practiced, is suitable in many instances. It cannot be denied, however, that a prolonged deep ether anesthesia engenders changes in body functions deleterious to the patient. Spinal anesthesia even under the best of management carries the risk of cardiovascular accidents in the postoperative period and of neurologic sequelae from which there appears to be no escape. It is toward patients handicapped by age or disease that our attention is principally focused. In these the cost of ether or spinal anesthesia may be too great, and methods effecting the least disturbance to metabolic functions should be entertained. Cyclopropane is a substitute in some instances. "Sodium pentothal" has become increasingly useful, and when supported by other agents the flexibility and scope of intravenous anesthesia is greatly enlarged. Curare fits well into these combinations. It is an anesthetic sparer and reduces materially the effective dosage of the agents with which it is combined. Curare is not just the refuge of the anesthetist destitute of the skill or patience to produce relaxation by other means. The combination of "sodium pentothal" and nitrous oxide with curare in amounts sufficient to reduce the dosage of the associated agents to the greatest possible degree may offer the greatest degree of safety to the poor risk patient. The intermittent injection of curare in small amounts assures adequate relaxation without initiating the ill effects on respiration of the larger single dose. As Dr. Tuohy has stated, the choice of agent or method is not always a simple matter. All factors must be considered in each individual case. It is agreed, however, that there can be no substitute for experience on the part of all members of the surgical team.

DR. EDWARD B. TUOHY, Rochester, Minn.: I want to thank Dr. Shields for his remarks concerning my paper. I am sorry that Dr. Volbrechthausen could not be present to participate in this discussion. There is one word that I may add concerning the potential difficulty that may arise through relative inexperience with curare; namely, that when one uses it for ultimate closure of the peritoneum, care should be given to see that the patients do ventilate properly, and they should not be left unattended when they return to their rooms after the closing of the peritoneum.

TREATMENT OF ESOPHAGEAL VARICES BY INJECTION OF A SCLEROSING SOLUTION

HERMAN J. MOERSCH, M.D.
Rochester, Minn.

In 1940 I reported [1] on my initial experience with the treatment of esophageal varices by injection of a sclerosing solution through an esophagoscope according to the technic of Crafoord and Frenckner,[2] and in 1941 I reported [3] on 11 cases in which this method of treatment had been used. In the latter paper it was stated that although the results were encouraging, sufficient time had not elapsed to permit determination, with accuracy, of the efficacy of the procedure. In this paper I am reporting on my experience to date with this form of treatment.

The present study is based on 10 of the 11 original cases reported in 1941, 1 case having been discarded because of lack of follow-up, and on 12 additional cases, a total of 22 cases. The patients in all cases were followed at least three years. For purposes of study, the cases were divided into three groups. The first group consisted of those cases in which the patient had undergone splenectomy for Banti's syndrome or so-called portal hypertension and in which massive gastrointestinal bleeding was the presenting complaint. The second group consisted of cases in which the esophageal varices were secondary to hepatitis and in which no surgical intervention had been attempted. The third group was made up of cases of Banti's syndrome in which treatment of esophageal varices by injection of a sclerosing solution through an esophagoscope was started first and splenectomy was performed during the course of the treatment. Massive gastrointestinal bleeding was also the presenting complaint in all the cases in groups 2 and 3.

TABLE 1.—*Cases in Which Splenectomy Had Been Performed Previous to Treatment of Esophageal Varices by Injection*

Case	Age, Years	Sex	Hemorrhage After Splenectomy: Duration, Years	Hemorrhage After Splenectomy: Number per Year	Treatment by Injection: Years Since Treatment	Treatment by Injection: Result
1	30	M	4	1	7	Died, hemorrhage
2	20	M	11	4	7	Bleeding
3	11	F	3	4	6	Good
4	33	M	4 mo.	6	6	Good
5	18	F	2	2	6	Good
6	16	F	2 mo.	12	6	Bleeding
7	61	M	4	4	5	Good
8	40	M	1½	2	3	Died, hepatic insufficiency
9	15	M	3	2	3	Died, cerebral hemorrhage
10	43	M	3 mo.	1	—	Died, cause unknown
11	16	M	7	6	4	Bleeding
12	32	M	2	2	4	Good
13	25	M	2 mo.	1	4	Good
14	16	F	4	2	4	Good
15	11	F	2½	4	3	Died, hemorrhage
16	26	M	2	2	3	Good

Sixteen of the 22 patients were in group 1 (table 1). The first 6 cases were included in the report of 1941. Eleven of the 16 patients were men and 5 were women.

TABLE 2.—*Cases in Which Splenectomy Had Not Been Performed and in Which Esophageal Varices Were Secondary to Hepatitis*

Case	Age, Years	Sex	Hemorrhage: Duration, Years	Hemorrhage: Number per Year	Treatment by Injection: Years Since Treatment	Treatment by Injection: Result
17	36	M	6	4	6½	Good
18	56	M	2	4	3	Died, hemorrhage
19	40	M	1	3	4½	Good

The youngest patient was 11 years old and the oldest, 61. Thirteen of the 16 patients had suffered from gastrointestinal bleeding before splenectomy. In all 16 cases hemorrhage since splenectomy had been copious; frequently one or more transfusions had been required. The duration and frequency of occurrence of hemorrhages in each case are indicated in table 1; the frequency varied from once a month to once a year.

Eight of the 16 patients in group 1 have had no further bleeding since completion of their injections. The time that has elapsed since completion of their treatment varies from three to seven years, as shown in table 1. The patients in all cases have been permitted to resume their normal activities, but they have been urged to avoid sudden severe exertion and, most important of all, to remain at rest, should an acute infection of the respiratory tract develop, until the infection has completely subsided. An acute infection of the respiratory tract is frequently found to be a precipitating factor in bleeding from esophageal varices; this is due to the esophagitis that may accompany such an infection. One woman in this group has undergone a normal confinement without evidence of bleeding from the esophageal varices.

Eight of the 16 patients in group 1 had further trouble after their injections, and treatments in these cases have been classified as failures. Five of these patients died; 2 died of massive gastrointestinal bleeding, 1 of hepatic insufficiency, 1 of a cerebral hemorrhage and 1 patient at home of an unexplained cause. Three unsuccessfully treated patients who are still living have continued to suffer from gastrointestinal bleeding.

TABLE 3.—*Cases in Which Splenectomy Was Performed During Course of Treatment of Esophageal Varices by Injection*

Case	Age, Years	Sex	Gastric Varices Present	After Treatment: Years Free of Bleeding	After Treatment: Result
20	32	F	No	6½	Good
21	46	M	Yes	Continued to bleed	Failure
22	47	F	Yes	3½	Good

The second group of cases consisted of 3 patients (table 2). In this group, 2 of the patients have obtained satisfactory results from their injections and have had

From the Division of Medicine, Mayo Clinic.

Read before the Section on Gastro-Enterology and Proctology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

1. Moersch, H. J.: Treatment of Esophageal Varices by Injection, Proc. Staff Meet., Mayo Clin. **15**: 177-179 (March 20) 1940.
2. Crafoord, C., and Frenckner, P.: New Surgical Treatment of Varicose Veins of the Oesophagus, Acta otolaryng. **27**: 422-429, 1939.
3. Moersch, H. J.: Further Studies on the Treatment of Esophageal Varices by Injection of a Sclerosing Solution, Ann. Otol., Rhin. & Laryng. **50**: 1233-1244 (Dec.) 1941.

no further bleeding. The third patient died of a gastrointestinal hemorrhage after having been free of bleeding for three years following the injections. Two of these cases were included in the original report in 1941.

The third group of cases comprised 3 patients with Banti's syndrome who were suffering from gastrointestinal bleeding. Two of the cases were reported previously. In these cases injections into the esophageal varices were started before the spleen was removed but splenectomy was performed in the course of treatment of the varices (table 3). These were cases in which enlargement of the spleen was not apparent at the outset of treatment but was noted during the course of observation. Two of the 3 patients have had no further gastrointestinal bleeding three and a half years and six and a half years, respectively, since the injections and splenectomy. The third patient has continued to have episodes of severe gastrointestinal hemorrhage.

A review of the three groups of cases shows that satisfactory results were obtained by injection of a sclerosing solution into esophageal varices through an esophagoscope, for the control of gastrointestinal bleeding, in 12 of the 22 cases. Six of the unsuccessfully treated patients have died, 3 of gastrointestinal bleeding, 1 of hepatic insufficiency, 1 of cerebral hemorrhage and 1 of an indeterminate cause. The 4 remaining unsuccessfully treated patients have continued to suffer from gastrointestinal hemorrhage.

The question presents itself as to why certain patients suffering from gastrointestinal hemorrhage from esophageal varices obtain satisfactory results from the injection of a sclerosing solution, while others do not. The age or sex of the patient was found to be of no importance in this respect. The duration of the patient's trouble and the frequency with which gastrointestinal bleeding occurred were likewise of no importance.

It might be anticipated that the patients whose esophageal varices could not be demonstrated on roentgenologic examination would be the most suitable ones for injection therapy. This expectation, however, was not borne out by the results, for in only 3 of the successfully treated patients were no varices seen on roentgenologic examination of the esophagus, while in 5 of the unsuccessfully treated patients no varices were seen on roentgenologic examination.

It was soon noted that on roentgenologic examination of the esophagus and stomach in the cases in which gastrointestinal bleeding continued after treatment of the esophageal varices by injection, varices occasionally were found in the cardiac end of the stomach as well as in the esophagus. In the cases in which the injections were followed by satisfactory results, varices were never demonstrable in the cardiac end of the stomach on roentgenologic examination. In view of the fact that esophageal varices can be overlooked on roentgenologic examination of the esophagus, it seemed more than likely that varices in the cardiac end of the stomach could also escape detection by this method of examination. Six of the 10 unsuccessfully treated patients were found, on gastroscopic examination, to have gastric varices. In 2 of these 6 cases roentgenoscopic examination of the stomach had failed to reveal the varices; in both of these cases the diagnosis of gastric varices was confirmed at necropsy. Only 1 of the successfully treated patients in this study was submitted to gastroscopic examination; this examination failed to reveal varices in the cardia. It is now a routine for me to perform a gastroscopic examination on every patient in whom the treatment of varices of the esophagus by injection is contemplated. So far the procedure has been employed without untoward incident.

That bleeding occurs from gastric varices and that the sclerosing of esophageal varices in a case of this type is of little value are well borne out in 2 cases in group 1. One patient (case 15) had suffered repeatedly from severe gastrointestinal hemorrhage. Although roentgenologic examination of the esophagus failed to demonstrate esophageal varices, esophagoscopy showed them to be present up to the middle third of the esophagus. In spite of repeated satisfactory injections the patient continued to have gastrointestinal bleeding. Suspecting the presence of gastric varices, I performed gastroscopy and found varices in the cardiac end of the stomach. It seemed obvious that further injections would be of doubtful value. Some weeks later the patient lost copious amounts of blood by bowel and it was impossible to control the bleeding. On esophagoscopy no bleeding point could be found in the esophagus, but when the esophagoscope was introduced into the stomach approximately a pint of blood was regurgitated through the instrument. In spite of all restorative measures that could be employed, the patient continued to bleed and died several days later. At necropsy varices were demonstrated in the esophagus and the cardiac end of the stomach, and the bleeding point from which the fatal hemorrhage occurred was identified as gastric in origin (fig. 1).

Fig. 1.—Lower end of esophagus and cardiac end of stomach in case 15.

Another patient (case 1) also suffered from a gastrointestinal hemorrhage which resulted in death; at necropsy the bleeding point was found to be a gastric varix (figs. 2 and 3). It is readily apparent that the presence of varices in the cardiac end of the stomach is a contraindication to the injection type of treatment of esophageal varices.

It is interesting to speculate as to what occurs in the esophageal varices after injection of a sclerosing solution. Samson and Foree [4] reported that in a case in which treatment of esophageal varices by injection of a sclerosing solution through an esophagoscope had been carried out, the veins were found at necropsy to be well sclerosed. Trolle and Trolle,[5] however, were unable to demonstrate such changes in 1 case of esophageal varices in which monoethanolamineoleate ("varex") was used as the sclerosing agent. On esophagoscopic examination following satisfactory injection of a sclerosing solution of sodium morrhuate into esophageal varices, a diminution in the size of the varices will be found to have occurred. This finding has been corroborated by Crafoord and Frenckner,[2] Samson and Foree,[4] and Patterson and Rouse.[6] In this study, in 2 of the cases in which death occurred and in which postmortem studies were available the vessels in the wall of the esophagus were found not to be obliterated. A definite perivenous fibrosis with thickening of the intima was noted (figs. 3 and 4). Such changes would

Fig. 2.—Lower end of esophagus and cardiac end of stomach in case 1. Probe is inserted into bleeding point.

naturally aid in making the varices less subject to perforation, with resultant bleeding.

In suitably selected cases of esophageal varices in which there is no extension of the varices into the cardiac end of the stomach, satisfactory results may be expected from injection of a sclerosing solution into the varices through the esophagoscope. In cases in which the varices involve the cardiac end of the stomach as well as the esophagus, other methods of treatment are indicated. Two methods of treatment in this latter type of case are especially worthy of consideration. The first is the establishment of a portal caval anastomosis according to the technic described by Blakemore [7]; the other is resection of the lower end of the esophagus and the cardiac end of the stomach as reported by Phemister.[8] One of the patients in this study (case 11, table 1) was operated on by Phemister by this method with very satisfactory results. Both of these procedures are deserving of careful consideration, but time must pass before it can be determined how much they may ameliorate the course of the disease.

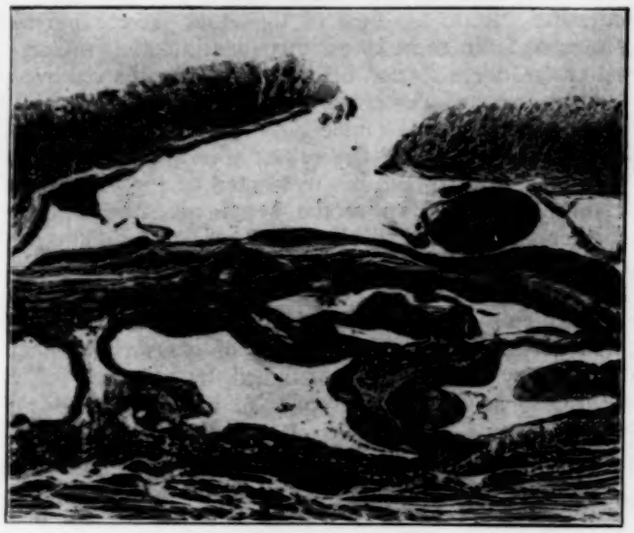

Fig. 3.—Section through bleeding point in gastric mucosa showing opening of vessel into gastric lumen (× 13).

SUMMARY AND CONCLUSIONS

The results of treatment in 22 cases of esophageal varices in which gastrointestinal hemorrhages occurred are reported; in these cases the patients were treated by the injection of a sclerosing solution into the varices through the esophagoscope. Twelve of the patients have had no further bleeding after treatment. All 12 have gone longer than three years without bleeding, and 8 have gone more than four years without bleeding.

Fig. 4.—Section through gastric mucosa showing perivenous fibrosis and thickening of the wall (× 30).

Patients in whom satisfactory results were not obtained by injection of a sclerosing solution invariably were found to have varices in the cardiac end of the stomach as well as in the esophagus, which was not true in the successfully treated patients.

4. Samson, P. C., and Foree, L.: Direct Injection of Esophageal Varices Through the Esophagoscope, West. J. Surg. **50**: 73-77 (Feb.) 1942.

5. Trolle, E., and Trolle, D.: Treatment of Oesophageal Varices by Injections of Sclerosing Agents Through the Oesophagoscope in Splenectomized Patient Suffering from Splenic Phlebostenosis (Splenic Anaemia): A Case with Autopsy, Acta chir. Scandinav. **94**: 385-396, 1946.

6. Patterson, C. O., and Rouse, M. O.: The Injection Treatment of Esophageal Varices, J. A. M. A. **130**: 384-386 (Feb. 16) 1946.

7. Blakemore, A. H.: Portacaval Anastomosis: A Report on Fourteen Cases, Bull. New York Acad. Med. **22**: 254-263 (May) 1946.

8. Phemister, D. B.: Personal communication to the author.

Roentgenologic examination is of great value in the diagnosis of esophageal varices but is not infallible. In doubtful cases esophagoscopy should be employed.

In cases of varices in which the cardiac end of the stomach as well as the esophagus is involved, some form of treatment other than that of injection of a sclerosing solution, such as portal caval anastomosis or resection of the cardiac end of the stomach and lower end of the esophagus, should be considered; such an alternate form of treatment eventually may even become the procedure of choice in uncomplicated cases of esophageal varices.

ABSTRACT OF DISCUSSION

DR. CECIL O. PATTERSON, Dallas, Texas: It is the experience of many of us that patients having untreated esophageal varices usually die of recurring hematemesis. We are therefore indebted to Dr. Moersch for introducing a new method which has proved life saving. Twelve of his patients have had no further bleeding now three to seven years since completion of sclerosing therapy. A word of caution is in order in that dangers of the injections relate to possible trauma to such structures as the aorta, pericardium or pleura. There were a few instances of substernal distress, pain into the back, or a few days of fever in some of our patients. Anaphylactic reactions to the injectable agent have been reported. Such hazards, however, are relatively inconsequential as compared to the high incidence of fatal hematemesis in untreated esophageal varices. In Dallas the injection treatments began in 1943, and our results are somewhat similar to those of the essayist. Our youngest patient was 3 years of age; our oldest, 66 years. The bleeding points were located and controlled at once by injections at a time in some instances when severe bleeding had continued several days. Most satisfactory results have been in the group of patients who have had splenectomy and also injections of their esophageal varices. But equally good control of hematemeses has been effected in a few nonsplenectomized patients of the fifth and sixth decades. The patients are improved in general health with control of blood loss and resultant better protein reserves. Ascites has disappeared in some of the cirrhosis group. Furthermore, there is a better outlook for these patients because of the teamwork of their doctors applied through newer knowledge of the therapy of associated conditions, as for example, the better management of hepatic diseases and of other hemorrhagic tendencies and advances in more definitive surgical measures as mentioned by Dr. Moersch. We are further grateful that our essayist has recorded another victory against a highly fatal disease—a victory the final attainment of which is the handiwork of a doctor who practices clinical medicine.

Obstetrics.—In the fifteenth century occurred the Renaissance, that wonderful revival of learning when men's minds suddenly felt the urge for knowledge in every department of life. Commencing in Italy, it surged through France and the Low Countries to England. The ablest minds were interested in every side of learning. . . . Now was opened a great field of research in medicine and surgery, and some of the best minds in these countries were devoted to it. Coincident with this was the discovery of printing, which more than anything diffused this increasing knowledge. But obstetrics, bound by the customs of many centuries, was enslaved in women's hands. Few, if any, women took part in this wonderful revival of learning, and as men were excluded from the birth chamber, no advance was made. In 1513 appeared Roslin's "Rosegarten" and some years later its English translation, "The Byrthe of Mankind," by William Raynalde. These were the first printed books on obstetrics, but it is interesting to note that there is not a single advance in these volumes from those of Soranus twelve centuries earlier.—Shaw, Sir William Fletcher, *Medical Journal of Australia*, Sept. 6, 1947.

WHITE BREAD AND EPILEPSY IN ANIMALS

CAPTAIN MAURICE L. SILVER
Medical Corps, Department of the Army
ROBERT E. JOHNSON, M.D., D.Phil. (Oxon.)
ROBERT M. KARK, M.R.C.P. (Lond.)
J. RAYMOND KLEIN, Ph.D.
FIRST LIEUTENANT ELMER P. MONAHAN
Medical Corps, Department of the Army
and
SOLOMON S. ZEVIN, B.S.
Chicago

The treatment of flour with chemical agents is a widespread commercial practice. In general, these chemical agents are applied either for "bleaching" or for "improving" the flour. Common usage has made the term bleaching synonymous for both of these effects. The main reasons for using chemical improvers are that they enable bakers to produce loaves of bread which appeal to the palate, allow millers to use any supply of sound wheat for the production of bread flour with uniform properties and circumvent the waste and spoilage which occur when flour is aged naturally during storage.

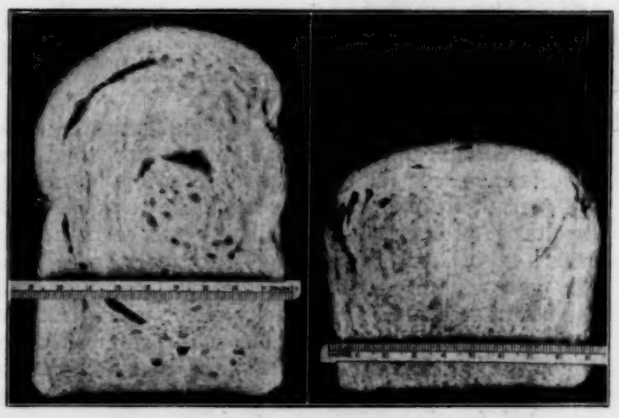

Fig. 1.—White bread baked from "agenized" (30 Gm. nitrogen trichloride per hundredweight) flour (left) contrasted with white bread baked from the same sample of flour before bleaching (right).

Although flour bleaching was first used widely at the turn of the century, during the past twenty-five years approximately 90 per cent of all white wheat flour milled in North America and in England (among other countries) has been treated with nitrogen trichloride (NCl_3).[1] Flour treated in this way produces a loaf of bread which is well risen, of good volume and symmetry, silky and finely vesiculated and with a smooth crisp crust (fig. 1). When fed to dogs as a major portion of their diet, such bread produces canine epilepsy.

Canine epilepsy is our term for the syndrome previously described as "canine hysteria," "running fits" or

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The statements and opinions in this paper do not necessarily represent the official views of any governmental agency.

From the Medical Nutrition Laboratory, an installation under the jurisdiction of the Surgeon General, Department of the Army (Silver, Johnson, Kark, Monahan); the Quartermaster Food and Container Institute for the Armed Forces, an installation under the jurisdiction of the Quartermaster General, Department of the Army (Zevin); and the Department of Psychiatry, College of Medicine, University of Illinois, Illinois Neuropsychiatric Institute (Klein).

Chemicals were supplied by Merck & Co., Inc., Rahway, N. J.; materials, baking and advice by the Cereal and Baked Products Division, Quartermaster Food and Container Institute for the Armed Forces. Wallace and Tiernan Company, Newark, N. J., permitted use of their bleaching equipment and materials. Mr. Soloski, Mr. Cryns, Mr. McWilliams and Miss Felsher assisted in baking diets, and Mr. Bishov, Mr. Wolf, Mr. Rolland and Miss Graham aided in fractionation and chemical analyses of the flour.

1. Throughout this paper, the term "agenized" will be taken to mean treatment of the sample under consideration with gaseous nitrogen trichloride (NCl_3).

"fright disease." We feel that the remarkable resemblance of this syndrome to human idiopathic epilepsy, with its irregular grand mal seizures and typical abnormal electroencephalograms (fig. 2), justifies the use of the word "epilepsy."

A dietary causation for this disease has been proposed by various investigators. Melnick and Cowgill [2] showed

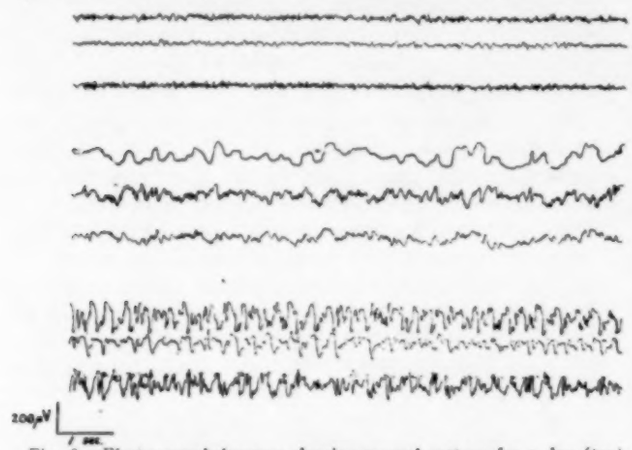

Fig. 2.—Electroencephalograms showing normal pattern for a dog (top), abnormal pattern two days after starting experimental diet containing 75 per cent "agenized" white wheat flour (middle); and typical seizure patterns obtained during fit occurring five days after start of experimental diet (bottom). Ordinate, 200 microvolts; abscissa, seconds.

that it could be produced by a diet nigh in wheat gliadin, and Elvehjem and his collaborators suggested that lysine deficiency [3] and, in more recent publications,[4] that ingestion of wheat gluten might be responsible for the fits. It remained for Mellanby [5] to carry out the crucial experiment, by proving that treatment of flour with gaseous nitrogen trichloride rendered that flour convulsant to dogs. The toxicity of the wheat fractions used in the investigations cited was presumably due to "agene" treatment of the flour sources, for, as has been amply demonstrated, untreated wheat and untreated fractions show no toxicity.

CLINICAL ASPECTS OF TOXICITY OF FLOUR

In an attempt to isolate the substance responsible for the nervous disorder and thus make it available for testing in man, a diet containing unbleached white wheat flour, liver powder, casein and accessory food substances was baked and fed to monkeys, dogs, cats and rats; full details are reported elsewhere.[6] This control diet has been fed to 56 dogs and 6 monkeys for periods up to three months and has been found adequate to maintain good nutrition and body weight during this time, without detectable abnormalities. The experimental diet was made up in exactly the same way as the control diet except that the flour was heavily treated with nitrogen trichloride (30 Gm. per hundredweight [45.36 Kg.]).[7] In dogs, cats and monkeys definite neurologic abnormalities developed within a week after changing to the experimental diet.

The clinical manifestations of disturbed function were different in different animals. Dogs exhibited changes in behavior, ataxia, weakness and typical epileptic convulsions, but the clinical picture varied from animal to animal. Commonly the first sign of abnormality was a definite change in the attitude of the animal toward its caretakers. An aggressive animal might become retiring, or a friendly one irritable or vicious. Some animals would stand quietly and stiffly for minutes at a time staring into space, in a manner reminiscent of pyknolepsy. In contrast to these "standing fits" some animals would exhibit classic "running fits," howling and dashing madly around the cage. At these times ataxia, especially of the hind limbs, was pronounced. Even at rest a decided postural change was present in the hind limbs, characterized by "splayfootedness." A typical grand mal attack lasted about five minutes, and began at any time without apparent relation to external stimuli. Furthermore, there was no regular time interval between attacks. Each began with a premonitory howl, followed by falling over, salivation, running or paddling movements, and finally clonic jerks, urination and defecation. In the postictus period the animal was weak, arose with difficulty, appeared bewildered and was quiet. Usually about thirty minutes after an attack, the dog had returned to his preconvulsive state. When electroencephalograms were recorded daily, a cerebral dysrhythmia indistinguishable from that of human epilepsy appeared within forty-eight to seventy-two hours after the start of the "agenized" diet (fig. 2). If the bleached flour diet was not changed within twenty-four hours after the onset of symptoms, the epileptic disorder frequently continued, and some animals went on to die in status epilepticus. We have noted oliguria and anorexia in dogs within three days after the beginning of the experimental diet.

In comparison with dogs, cats showed similar changes, except that ataxia predominated and convulsions were less pronounced. In order to produce neurologic changes larger amounts of toxic flour (per kilogram of body weight) were required for cats than for dogs.

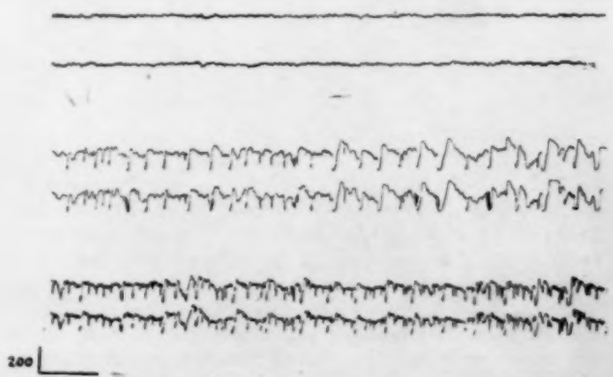

Fig. 3.—Electroencephalograms showing normal pattern for a monkey on control diet (top); cerebral dysrhythmia recorded from the same monkey fourteen days after starting experimental diet (middle), and from the same monkey forty-four days after starting an experimental diet containing 75 per cent "agenized" white wheat flour (bottom). Ordinate, 200 microvolts; abscissa, seconds.

In monkeys an asynergy first developed, best seen after activity. Shortly thereafter tremors appeared, then weakness of the extremities, and, on occasion, electroencephalographic evidence of a cerebral dysrhythmia

2. Melnick, D., and Cowgill, G. R.: The Toxicity of High-Gliadin Diets: Studies on the Dog and on the Rat, J. Nutrition **14**: 401-418 (Oct.) 1937.

3. Arnold, A., and Elvehjem, C. A.: Is Running Fits a Deficiency Disease? J. Am. Vet. M. A. **95**: 303-308 (Sept.) 1939.

4. (*a*) Wagner, J. R., and Elvehjem, C. A.: A Study of Canine Hysteria Produced by Feeding Certain Baked Dog Foods and Wheat Gluten Flour, J. Nutrition **28**: 431-441 (Dec.) 1944. (*b*) Newell, G. W.; Erickson, T. C.; Gilson, W. E., and Elvehjem, C. A.: Effect of Wheat Gluten Diet on the Electroencephalograms of Dogs, Proc. Soc. Exper. Biol. & Med. **65**: 115-116 (May) 1947.

5. Mellanby, E.: Diet and Canine Hysteria: Experimental Production by Treated Flour, Brit. M. J. **2**: 885-887 (Dec. 14) 1946.

6. Silver, M. L.; Zevin, S. S.; Johnson, R. E., and Kark, R. M.: Canine Epilepsy Caused by Flour Bleached with Nitrogen Trichloride (Agene): I. Experimental Method, Proc. Soc. Exper. Biol. & Med., to be published.

7. Normal commercial practice varies with the source and type of wheat used. Patent flours rarely receive more than 2 Gm. per hundredweight of gaseous nitrogen trichloride, while clear flours may receive from 4 to 8 Gm. per hundredweight. In general, the Southwestern wheats (Kansas, Nebraska) require heavier treatments than other varieties.

was obtained (fig. 3). Monkeys eating the toxic diet were readily distinguished from their paired controls by their relative sluggishness and diminished excitability in response to irritating stimuli, such as poking with a broomstick. They were easily fatigued and their precision in leaping accurately to a new perch

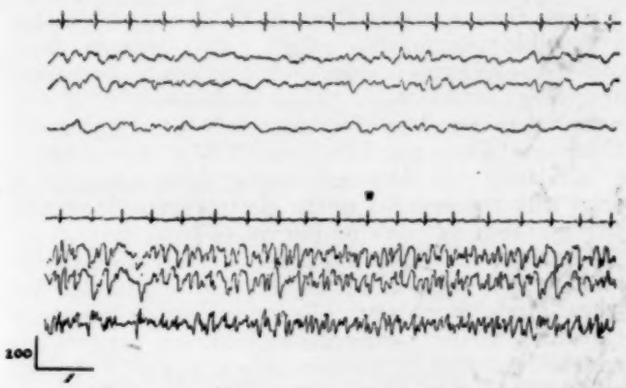

Fig. 4.—Electroencephalograms from a dog four days after start of experimental diet. Abnormal but nonseizure patterns after intravenous infusion of 5 Gm. of "unagenized" cysteine (top), and seizure pattern in the same dog after 3.5 Gm. of "agenized" cysteine (bottom). Ordinate, 200 microvolts; abscissa, seconds. Electrocardiogram also shown.

was impaired. When resting after prolonged activity the animals had a coarse slow tremor in their extremities, especially in the legs. This syndrome appeared within five days after changing to the experimental diet and it has persisted until the present time (one hundred days).

Albino rats fed a Sherman diet containing "agenized" whole wheat flour showed an abnormal accumulation of reddish pigment around the head, eyes and nose. This pigment was best detected by its red fluorescence in ultraviolet light, and is presumably a porphyrin.

TOXICOLOGY OF "AGENIZED" PRODUCTS

Fractionation of "agenized" wheat flour into protein, starch and fat components showed that convulsive activity was retained in the protein fraction alone. When the protein extracted from unbleached flour was fed to animals, no untoward effects were noted. After separation of "agenized" protein into glutenin and gliadin components, most of the toxicity remained in the gliadin fraction. Because of this, we decided to see what would happen to animals given a mixture of "agenized" synthetic amino acids prepared to approximate gliadin in amino acid composition.[8] This mixture was given by intravenous infusion to dogs, and in acute experiments rapidly induced seizures which were recorded by the electroencephalograph, as reported in detail elsewhere.[9] On the other hand, 2 of our dogs never had convulsions in two weeks during a course of daily intravenous administration of 5 Gm. of "agenized" mixed amino acids. Of thirteen amino acids tested individually, only cysteine and cystine produced seizures (fig. 4).

The nonwheat proteins, casein and lactalbumin, were "agenized," and they also proved toxic when fed to dogs. However, the biologic potency of "agenized" lactalbumin was at least twice that of "agenized" casein, roughly proportional to their cystine contents. Moran,[10] who tested zein and gelatin, both of which can be rendered toxic by "agene" treatment, found a comparative potency which we relate to their cystine content.

Chemical analysis of treated and untreated flours must answer these questions: Is nitrogen added to the amino acids? Is chlorine added? Is the alteration a simple oxidation? Work in progress indicates that no significant addition of nitrogen occurs and that, although total chlorine is increased by "agene" treatment, there is as yet no evidence that it enters into organic linkage with the amino acids. That oxidation occurs there can be no doubt. There is the direct evidence of oxidation of certain amino acids, e. g., tryptophan, and the indirect evidence of the formation of sulfoxides and sulfones at the sulfur linkage, as indicated by porphyrinuria[11] in rats fed on oxidized casein.

COMMENT

The earlier investigations of Mellanby[5] and Elvehjem[4a] indicated that nitrogen trichloride toxicity was a species-specific phenomenon. Subsequent work of Mellanby,[12] Moran,[10] Radomski and co-workers[13] and ourselves[6] showed clearly that abnormalities can be produced in rabbits, rats, cats, ferrets, dogs and monkeys. Unfortunately the crucial experiment on man has not yet been reported.

We suggest that, since the "agene" process is only twenty-five years old and since it is notoriously difficult to duplicate in animals disease processes which develop during a life span in man, investigation should be directed toward those diseases of man which have clearly increased in incidence subsequent to the introduction of the "agene" process. Moreover, primary emphasis should be directed toward diseases having a neurologic component, such as duodenal ulcer, schizophrenia and disseminated sclerosis. We are investigating some possibilities. For instance, allergy studies are being conducted on a hospital population to determine whether there is sensitivity among any groups of patients to "agenized" proteins.

Although we have no evidence that nitrogen trichloride is toxic to man we agree with the report of the Departmental Committee of the Ministry of Health of Great Britain:[14]

> The object of maintaining inviolate the purity of the flour supply we regard as inspired by a sound instinct and we think that the responsibility for relaxing the principle is a very grave one, particularly at a time when research is beginning to throw new light upon the existence and properties of the more subtle constituents of the foodstuffs. . . . Our view then is that flour should be the product of the milling of wheat without the addition of any foreign substance.

The significant possibility that a toxic substance is being offered to the American public in a universal and staple article of diet such as bread, at a time when we are being compelled by present world conditions to increase the cereal content of our diet, makes it imperative that the medical profession as a whole should take on itself the responsibility for investigating, by many

8. Vickery, H. B.: Analysis, in Dunlap, F. L.: White Versus Brown Flour, Newark, Wallace & Tiernan Company, Inc., 1945, p. 244.
9. Silver, M. L.; Monahan, E. P., and Klein, J. R.: Canine Epilepsy Caused by Flour Bleached with Nitrogen Trichloride (Agene): II. Role of Amino Acids, Proc. Soc. Exper. Biol. & Med., to be published.
10. Moran, T.: Nitrogen Trichloride and Canine Hysteria, Lancet 2: 289-291 (Aug. 23) 1947.
11. Dent, C. E., and Rimington, C.: Porphyrinuria in Rats Fed Oxidized-Casein: A Preliminary Communication, Biochem. J. 41: 253-260 (June) 1947.
12. Mellanby, E.: Further Observations on the Production of Canine Hysteria by Flour Treated with Nitrogen Trichloride (Agene Process), Brit. M. J. 2: 288-289 (Aug. 23) 1947.
13. Radomski, J.; Woodard, G., and Lehman, A.: The Toxicity to Dogs of Various Flour Improvers, read at the meeting of the American Chemical Society, New York, Sept. 18, 1947.
14. Report of the Departmental Committee on the Treatment of Flour with Chemical Substances, Ministry of Health, London, His Majesty's Stationery Office, 1927, p. 21.

different technics and on different species of animals, the wholesomeness and suitability of all processed foods.

SUMMARY

White bread, produced from wheat flour bleached by the most widely used commercial agent (nitrogen trichloride [NCl_3]), produces epilepsy ("canine hysteria," "running fits" or "fright disease") and other neurologic disorders in animals.

In dogs eating a nutritionally adequate diet containing 75 per cent of "agenized" white wheat flour (with liver powder and casein and fortified with accessory food substances) clinical epilepsy develops, including typical electroencephalographic patterns, indistinguishable from human idiopathic epilepsy. Monkeys show asynergy, weakness and tremors sometimes accompanied by cerebral dysrhythmia. Cats exhibit a marked ataxia. Rats exhibit an abnormality of porphyrin metabolism.

"Agene" treatment of the wheat fractions gluten, glutenin and gliadin and the nonwheat proteins lactalbumin and casein renders them convulsant when fed to dogs. Mixtures of synthetic amino acids, and the individual amino acids cysteine and cystine, after treatment with agene, when injected intravenously into dogs on such a diet, produced seizures.

1849 West Pershing Road (9).
912 South Wood Street (12).

ROLE OF "AGENIZED" FLOUR IN THE PRODUCTION OF RUNNING FITS

G. W. NEWELL, M.S.
T. C. ERICKSON, M.D.
W. E. GILSON, M.D.
S. N. GERSHOFF, B.A.
and
C. A. ELVEHJEM, Ph.D.
Madison, Wis.

Recently, Mellanby (1946)[1] has shown that when white flour is bleached with nitrogen trichloride, known as the "agene" process, a toxic product is produced which will induce running fits when the flour is included in rations fed to dogs. Earlier, Arnold and Elvehjem (1939)[2] prepared a heat-processed dog food of wheat flour and meat scraps which consistently caused running fits when fed to dogs. Wagner and Elvehjem (1944)[3] were able to produce running fits in dogs when commercial wheat gluten was included in the ration. By increasing the amount of gluten fits could be induced in proportionally shorter lengths of time. This work confirmed an observation made by Parry,[4] while working here, that this canine disease was caused by some toxic product in the wheat protein. The condition called running fits, or "canine hysteria" as used by the English workers, causes dogs to become hypersensitive to loud noises and sudden movements. Wild barking and running of the animal soon increase to the point where epileptiform convulsions appear.

Some time ago one of us (T.C.E.) suggested that a possible relationship might exist between these convulsive seizures in dogs and the convulsive seizures of epilepsy seen in man. When electroencephalograms were taken on dogs fed the toxic gluten, Newell, Erickson, Gilson and Elvehjem (1947)[5] demonstrated a similarity of electroencephalographic changes in dogs with running fits to the electroencephalographic changes seen in cases of human epilepsy.

The experimental results presented here were started in 1946 with the feeding of bleached and unbleached wheat products to dogs. The investigations have been expanded to other animals, and human patients are now being tested for sensitivity to wheat products and other nitrogen trichloride–treated foods which cause fits in dogs.

MATERIALS AND METHODS

Mongrel dogs ranging in age from 6 weeks to 4 months were used in these experiments. Each animal was dewormed, dusted with DDT (4,4'-dichlorodiphenyltrichloroethane), protected against distemper with injections of Greene's vaccine or canine antidistemper serum and maintained on the basal control ration for a week or more before being admitted for experimentation in the laboratory.[6]

The toxicity of a flour was tested by including it in a ration of the following composition: flour, 84 parts; salts IV, 4; corn oil, 5, and whole liver powder, 2. Oral supplements of 0.75 mg. thiamine, 0.75 mg. riboflavin, 0.5 mg. pyridoxine, 0.25 mg. pantothenic acid, 1 mg. nicotinic acid and 70 mg. choline per kilogram of body weight and 6 drops of halibut liver oil were administered twice weekly. Consumption records were kept for each animal so that an accurate evaluation could be made of the toxicity of a particular material in relation to the amounts consumed and the length of time before seizures occurred. Although rations which contain 84 per cent of flour are unusual in composition, the dogs ate 200 to 400 Gm. of food daily and showed a consistent gain in weight over a period of several months when fed unbleached flours. Dogs were fed flour rations for 6 to 12 weeks if no toxic reaction was observed. When running fits developed the basal ration was substituted for the flour rations. In a few days the dogs returned to their normal conditions if the seizures were not too severe. It fits were allowed to continue until epileptiform convulsions developed, the animals often died or retained a permanent sensitivity and shyness.

Most of the flours used in these experiments were unbleached when obtained from the miller and were treated with various bleaching and maturing agents under the supervision of the Wallace and Tiernan Company. These flours were composed of two large shipments of enriched straight flours milled from Kansas and Nebraska hard red winter wheat. On analysis they

From the Department of Biochemistry, College of Agriculture, and the Departments of Surgery (Neurosurgery) and Medical Electronics, School of Medicine, University of Wisconsin.

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Miss Ruth S. Dickie and Miss Ruth Flummerfelt helped in preparing diets for the hospital patients; Miss Ada Zimmerman, Miss Phyllis Helmer and Miss Hulda Gieschen assisted in recording the electroencephalograms; Mr. Carl B. Merisalo helped in the care of the dog colony.

1. Mellanby, E.: Diet and Canine Hysteria, Brit. M. J. **2**: 885, 1946.
2. Arnold, A., and Elvehjem, C. A.: Is Running Fits a Deficiency Disease? J. Am. Vet. M. A. **95**: 303, 1939.
3. Wagner, J. R., and Elvehjem, C. A.: A Study of Canine Hysteria Produced by Feeding Certain Baked Dog Foods and Wheat Gluten Flour, J. Nutrition **28**: 431, 1944.
4. Parry, H. B.: Unpublished data.
5. Newell, G. W.; Erickson, T. C.; Gilson, W. E., and Elvehjem, C. A.: The Effect of Wheat Gluten Diet on the Electroencephalograms of Dogs, Proc. Soc. Exper. Biol. & Med. **65**: 115, 1947.
6. The composition of the basic control diet was as follows: casein, 20 parts; sucrose, 69; salts IV, 4; corn oil, 5, and whole liver powder, 2. Oral supplements of 0.75 mg. thiamine, 0.75 mg. riboflavin, 0.5 mg. pyridoxine, 0.25 mg. pantothenic acid, 1 mg. nicotinic acid and 70 mg. choline per kilogram of body weight and 6 drops of halibut liver oil were administered twice weekly.

contained an average of 13.1 per cent moisture, 10.1 per cent protein and 0.46 per cent ash. The flours were kept in a minus 3 C. cold room until used. Several samples of the commercially treated flours were also stored at room temperature to see whether any change in potency would occur when the flour was kept under different conditions.

TABLE 1.—*The Relation Between the Incidence of Running Fits and the Level of Nitrogen Trichloride Used to Bleach Flour* *

Nitrogen Trichloride, Gm./Cwt of Flour	No. of Dogs	No. of Days Fed	Symptoms
0	6	84	None
1	2	13-48	Fits in 13-39 days
2	2	12-29	Fits followed by convulsions in 12-19 days
3	6	10-15	Fits followed by convulsions in 4-11 days
20	2	3-8	Convulsive seizures in 3-5 days followed by death of animal
20 †	4	2-5	Convulsive seizures in 2-5 days; 3 of the animals died

* The flours used in this experiment were enriched hard red winter wheat, straight grade, and fed at 84 per cent of the ration.
† Whole wheat flour.

The question arose whether variety of wheat played any part in the etiology of running fits. Samples of unbleached flours were collected from the major growing areas with an emphasis on obtaining the principal varieties of wheat grown in this country.

RESULTS

It is evident from table 1 that the 6 dogs receiving unbleached flour showed no fits over a period of eighty-four days. Feeding tests with the following varieties of unbleached flour for twelve weeks produced no attacks of running fits: hard red winter wheat, soft red winter wheat, short patent durum wheat and short patent hard red spring wheat. The data in table 1 also show that there is a direct correlation between the level of nitrogen trichloride used to bleach flour and the time required for the onset of fits. All dogs which were placed on rations containing flour treated with nitrogen trichloride had fits. The group of dogs receiving flour treated with 1 Gm. of nitrogen trichloride per hundredweight (45.4 Kg.) showed mild fits in thirteen to thirty-nine days. As the level of nitrogen trichloride was increased seizures became more severe. Although the toxic rations were replaced by the basal control ration as soon as the first seizures occurred, several animals died. In 1 case, a dog which consumed 125 Gm. of the whole wheat flour ration died twelve days after being placed on the basal ration. During this period the dog ate poorly and showed frequent seizures.

Data in table 2 show the effect of commercially bleached flour when included at 84 per cent of the ration. In the United States nitrogen trichloride is added at levels of 1.2 to 2.5 Gm. per hundred pounds of flour alone or in combination with benzoyl peroxide. When the dogs were fed rations which contained commercially bleached flour treated in some degree with nitrogen trichloride all animals had fits. Seizures did not occur until the sixth week of feeding, when the low level of 0.2 Gm. trichloride per hundredweight of flour was used. This flour was made of 80 per cent untreated flour and of 20 per cent flour treated with 1 Gm. nitrogen trichloride per hundredweight. A definite reaction was observed within eleven to sixty-one days in the dogs on the 2.2 to 1.2 Gm. nitrogen trichloride per hundredweight, respectively. In order to study the effect of natural aging on "agenized" flours, several dogs were fed the commercially bleached flour (1.2 Gm. nitrogen trichloride and 4 Gm. benzoyl peroxide per hundredweight of flour) after it had been stored at room temperature for three months. The dogs had seizures in the usual time and no change in toxicity was evident. Other bleaching and maturing agents, benzoyl peroxide, chlorine dioxide, chlorine, nitrogen peroxide and methyl dichloramine have been fed for at least twelve weeks with no evidence of toxicity.

A ration containing 30 per cent flour treated with 1.2 Gm. nitrogen trichloride and 4 Gm. benzoyl peroxide per hundredweight has been prepared which is comparable in flour content to the level of flour included in the average American diet. In experiments which are still in progress 2 dogs have been fed this ration for twelve weeks. Throughout this period the dogs have shown no symptoms of running fits.

The physiologic state of dogs fed toxic wheat gluten or toxic wheat flour has been studied in some detail. Melnick and Cowgill (1937)[7] reported a decrease in urine excretion and a slight increase in the weight of dogs a day or two before the onset of fits. Careful records of food intake, water consumption, urine excretion and weight changes have been made on several dogs fed the basal ration or the toxic gluten. A gradual decrease in food consumption and a corresponding loss in weight occurred in all dogs when fed the gluten. No increase in water retention was observed.

A study of the composition of blood from dogs fed the control ration and the toxic gluten has indicated

TABLE 2.—*The Effect of Flour Treated at Commercial Levels with Various Bleaching Agents on Running Fits in Dogs*

Flour	Treatment per Cwt.	No. of Dogs	Days Fed	Symptoms
Short patent spring wheat	0.2 Gm. nitrogen trichloride, 3.5 Gm. benzoyl peroxide	1	63	Mild fits on 42d day followed by severe fits on 59th day
Bakers' patent hard red winter wheat	1.2 Gm. nitrogen trichloride, 4 Gm. benzoyl peroxide	5	14-61	Fits followed by convulsions in 11-61 days
Bakers' patent hard red winter wheat	2.2 Gm. nitrogen trichloride, 7 Gm. benzoyl peroxide	4	11-62	Severe fits in 11-21 days
Bakers' patent hard red winter wheat	8 Gm. benzoyl peroxide	3	84	None
Bakers' patent hard red winter wheat	2 Gm. chlorine dioxide	3	84	None
Bakers' patent hard red winter wheat	14 Gm. chlorine	3	42-84	None
Bakers' patent hard spring and winter wheat	1-2 Gm. nitrogen peroxide	2	21-48	None
Clear white flour	8 Gm. methyl dichloramine	1	45	None

that no gross changes occur. Some blood samples have been taken when the animals were in a convulsive state. The following analyses have been made: hemoglobin determination, hematocrit reading, red blood cell count, white blood cell count and determination of prothrombin time, glucose, calcium, phosphorus, magnesium, sulfur, serum protein, potassium, nonprotein nitrogen and vitamin C.

7. Melnick, D., and Cowgill, G. R.: The Toxicity of High-Gliadin Diets: Studies on the Dog and on the Rat, J. Nutrition **14**: 401, 1937.

Fractionation studies of wheat flour and wheat gluten give further evidence that the condition of running fits is caused by a toxic agent rather than as the result of a deficiency. Wheat gluten treated with nitrogen trichloride (or gluten made from flour treated with nitrogen trichloride) has been digested with pancreatin at 38 C. for forty-eight hours. The soluble digest was treated with acid, ethyl alcohol and chloroform and the precipitate removed. The nonprecipitable material was active when fed to dogs either as part of the ration or by stomach tube. The toxic factor has been found to be soluble in 75 per cent ethyl alcohol, not precipitable by lead acetate, but is dialyzable at 4 C. Attempts to extract the nonprecipitable fraction of the pancreatin digest with n-butyl alcohol have proved unsuccessful.

It is important from the standpoint of fractionation to determine whether the toxic factor is associated with the lipid of flour. From the data in table 3 it is evident

TABLE 3.—*Effect of Lipid Extraction on the Ability of "Agenized" Flour or Gluten to Induce Running Fits in Dogs*

Preparation	Material Used	Extraction	Material Fed	No. of Dogs	Symptoms
81	Flour treated with 3 Gm. nitrogen trichloride/cwt.	Extracted 3 times with "Skelly solve B" and $CHCl_3$ (3:1)	Gluten prepared from extracted flour *	2	Fits in 3 days
			Lipid extract	2	None
82	Flour treated with 2 Gm. nitrogen trichloride/cwt.	Extracted 3 times each with ether, "Skelly solve B" and $CHCl_3$ (3:1), ether and C_2H_5OH (1:1)	Gluten prepared from extracted flour	1	Fits in 5 days
84	Gluten from commercially bleached flour	None	Unextracted gluten †	1	Fits in 6 days
85	Gluten as used in preparation 84	Extracted 3 times with hot 95% C_2H_5OH	Extracted gluten ‡	1	Fits in 6 days
88	Extracted gluten prepared in preparation 81	Extracted with hot 95% C_2H_5OH and then with ethyl ether	Reextracted gluten §	2	Fits in 5 days
			Lipid extract	2	None

* Gluten contained 2.7 per cent lipids.
† Unextracted gluten contained 9.4 per cent lipids.
‡ Extracted gluten contained 0.61 per cent lipids.
§ Gluten reextracted by Dr. Betty Sullivan, Russell-Miller Milling Company, contained 0.6 per cent lipids.

that the lipids can be removed (from wheat flour or wheat gluten) only by exhaustive extraction. Unextracted gluten contains 9 to 10 per cent lipid. When gluten prepared from flour was extracted with a petroleum ether ("Skelly solve B") and chloroform in a 3:1 ratio (preparation 88) the lipid content was reduced to 0.6 per cent. Eleven dogs were used in these tests, and in no case was the toxicity removed from the gluten or diminished by extraction of the lipids.

When samples of experimental gluten were prepared from flour, the starch was removed by washing. The starch solution removed from one sample of the toxic flour was concentrated, dried and ground to a fine powder. The starch was then substituted for sucrose in the basal control ration and fed to a dog for three weeks. At no time were any toxic symptoms observed. Experiments involving the extraction of "agenized" flour with petroleum ether, absolute alcohol, chloroform or acetone have been reported by Moran (1947)[8] which support the foregoing data. He has also fed dogs "agenized" wheat starch with no evidence of running fits.

A ration containing 84 per cent whole wheat flour (treated with 20 Gm. nitrogen trichloride per hundredweight) which produced convulsive seizures within two to five days in dogs was fed to monkeys ranging from 1 to 2½ years in age. The monkeys grew well and showed no clinical abnormalities over a period of seven to twelve weeks. Electroencephalograms were taken on 2 of these monkeys while on a basal ration and while on the whole wheat flour ration. Normal electroencephalograms were obtained when the monkeys were fed the basal control ration, but spikes and slow waves, similar to the electroencephalograms obtained when dogs were fed toxic gluten, were recorded ten to twenty days after the "agenized" whole wheat flour ration was fed. It is important to observe here that throughout the twelve weeks during which the monkeys were fed the whole wheat ration there was never any indication of fits or convulsive seizures.

Although dogs have been fed chlorine dioxide–treated flours for three months with no sign of toxicity, a further test of this proposed bleaching agent was made with monkeys. A flour ration similar to those fed dogs, but containing 3 per cent yeast, was mixed with the proper amounts of water and made into a dough. Bread baked from this mixture was fed to 2 adult monkeys for a six week period. At no time was there any indication of toxicity to the monkey. Food consumption of the animals during this time was good and a gradual weight increase was noted.

Weanling male rats have been raised on whole wheat flour rations similar to those fed the monkeys. Growth response (35 Gm. per week) of rats fed the wheat treated with 20 Gm. nitrogen trichloride per hundredweight of flour for four weeks was as good as the growth obtained for the rats fed untreated whole wheat. Electroencephalograms were made on the rats by placing electrodes on their shaved scalps. However, interference from electrical discharges of the temporal muscles prevented the obtaining of clear records.

Kittens and adult cats have been tested for their sensitivity to nitrogen trichloride–treated flours by keeping them on the whole wheat ration, treated with 20 Gm. of nitrogen trichloride per hundredweight of flour. Considerable variation in cats must exist, since 1 kitten had fits eleven days after it was put on the heavily treated whole wheat ration. However, a litter mate has been on the same ration for thirteen weeks and has had no observed fits or convulsions. An adult cat placed on the treated whole wheat ration came down with fits in three days. Convulsions occurred on the eighth and ninth days. The cats which had convulsions were killed and their brains removed for histologic study. A second adult cat has been fed the treated whole wheat flour for six weeks and has had no observed fits or convulsions during that time. Histologic studies by Roetter (unpublished) on cats and dogs have revealed no significant changes in the central nervous system.

The effect of heavily "agenized" gluten on guinea pigs and chicks has also been studied. Twelve guinea pigs were fed a diet containing 15 per cent gluten, bleached with 225 Gm. nitrogen trichloride per hundredweight of gluten, and 85 per cent commercial guinea pig ration for four weeks. No clinical abnormalities were observed.

8. Moran, T.: Nitrogen Trichloride and Canine Hysteria, Lancet 2: 289, 1947.

Day old chicks were fed both synthetic and natural rations which contained 15 per cent gluten, treated with 225 Gm. of nitrogen trichloride per hundredweight of gluten, for a four week period. Control groups were fed similar rations containing unbleached gluten. No symptoms of running fits were observed and no differences were found between the chicks on "agenized" and "nonagenized" gluten rations.

In order to determine whether or not the production of this toxic product was peculiar only to wheat products, a sample of rye was treated with 2.5 Gm. nitrogen trichloride per hundredweight of flour. Mild fits occurred in nineteen to thirty-one days when dogs were fed the rye flour ration. This period is comparable with the eleven to twenty-one days before seizures observed when dogs were fed wheat flour rations treated with a similar level of nitrogen trichloride. Other protein-containing food materials such as corn flour, casein, skim milk powder and gelatin have been treated with 20 Gm. nitrogen trichloride per hundredweight. Dogs had severe convulsions in three to five days on the casein and corn flour rations, but no reaction was obtained with the milk powder or gelatin. Moran (1947)[8] has recently reported that dogs have fits when fed rations which contain casein, zein or gelatin treated with nitrogen trichloride. Our failure to obtain a response with gelatin and skim milk powder may be due to the fact that Moran's food products were exposed to a fifteenfold greater treatment than that used in these experiments.

Since Mellanby (1946)[1] reported that bleached flour was the causative agent in producing fits in dogs, numerous articles have been written which raise the question, "Does agenized flour play any part in producing epilepsy in human beings?" In a preliminary experiment 5 human subjects ranging in age from 6 to 16 years were placed on balanced diets which included daily supplements of wheat products treated with 3 to 20 Gm. of nitrogen trichloride per hundredweight. The patients consumed 70 to 105 Gm. of the treated wheat products daily. Diets were continued for a two to four week period and electroencephalograms were taken every third day in order to detect any possible changes which might occur in the electroencephalograms. Records obtained for these subjects showed no abnormalities in the electroencephalograms when "agenized" materials were included in the diet, and no epileptiform seizures occurred. More detailed work on children and on adults is now in progress and will be reported in the near future.

SUMMARY

Running fits were produced in dogs fed high levels of flours bleached with nitrogen trichloride or flours bleached with combinations of nitrogen trichloride and benzoyl peroxide. Fits did not occur in dogs fed untreated flours or flours treated with benzoyl peroxide, chlorine dioxide, chlorine, nitrogen dioxide or methyl dichloramine. Studies on the blood of dogs which had fits showed no abnormalities.

Fractionation of wheat flour and wheat gluten has shown that the toxic factor is associated with the protein of wheat but not with the lipid or carbohydrate.

Monkeys fed highly "agenized" whole wheat flour rations showed some changes in the electroencephalographic patterns but did not show any of the clinical symptoms associated with running fits. Nitrogen trichloride–treated wheat products had no adverse effect on rats, chicks or guinea pigs. Growth responses of rats and chicks fed nitrogen trichloride–treated whole wheat flour and unbleached whole wheat flour were the same. Convulsive seizures have been produced in cats fed "agenized" flour.

In preliminary studies, human subjects have been fed "agenized" wheat products for two to four weeks. No changes in the electroencephalographic patterns were obtained nor were any abnormal clinical symptoms noted.

THE BABINSKI REFLEX AFTER FIFTY YEARS

ROBERT WARTENBERG, M.D.
San Francisco

Fifty years ago Joseph François Felix Babinski,[1] a neurologist of Paris, France, who was then 39 years of age, for the first time described his reflex of dorsiflexion of the great toe on stimulation of the sole. This (now) historic report was made at the meeting of the Société de Biologie de Paris on Feb. 22, 1896. That stroking the sole produces dorsiflexion of the great toe was reported in 1893 by E. Remak;[2] A. Strümpell[3] observed what is now called "permanent Babinski" in dorsolateral sclerosis in 1880, but it remained for Babinski first to realize the diagnostic significance of this phenomenon, which rightly carries his name. As James Russell Lowell has said, "It is not the finding of a thing, but the making something out of it after it is found, that is of consequence."

The Babinski reflex did not immediately gain the recognition that it now enjoys throughout the world. Once, in 1900, it was declared[3a] that its diagnostic importance "is quite minimal." Oppenheim,[4] in 1899, doubted whether this toe reflex would ever gain great importance in diagnosis. Later, however, he changed his mind when—with much fanfare—he[5] introduced his own, rather insignificant modification for the elicitation of the great toe reflex.

While working under Babinski in 1926, I asked him how it happened that he had discovered this reflex, whether it was by pure chance or as the result of some purposeful, systematic investigation. He answered that at that time neurologists were much concerned with the differential diagnosis of organic and hysteric hemiplegia. He hoped to find in the behavior of reflexes a criterion by which these two forms of the paralysis might be distinguished one from the other. Systematically he investigated all reflexes in patients with such a condition and found on examining the plantar reflex that the response in organic hemiplegia was not the normal plantar flexion of the great toe but its dorsal flexion. For Babinski his reflex was always essentially a plantar skin reflex, a substitute —so to speak—for the normal plantar response.

From the Division of Neurology, University of California Medical School.

1. Babinski, J.: Sur le réflexe cutané plantaire dans certaines affections organiques du système nerveux central, Compt. rend. Soc. de biol. **3**: 207, 1896.

2. Remak, E.: Zur Localisation der spinalen Hautreflexe der Unterextremitäten, Neurol. Centralbl. **12**: 506, 1893.

3. Strümpell, A.: Symptomenbild der "amyotrophischen Lateralsclerose." Combinirte Erkrankung der Pyramidenbahnen und gewisser Fasersysteme in den Hintersträngen, Arch. f. Phychiat. **11**: 32, 1880.

3a. Vires and Calmettes: Recherches sur le phénomène des orteils (signe de Babinski), Rev. neurol. **8**: 535, 1900.

4. Oppenheim, H., in discussion on Koenig, W.: Ueber die bei Reizung der Fussohle zu beobachtenden Reflexscheinungen, Neurol. Centralbl. **18**: 612, 1899.

5. Oppenheim, H.: Zur Pathologie der Hautreflexe an den unteren Extremitäten, Monatschr. f. Psychiat. u. Neurol. **12**: 421 and 518, 1902.

Now it is known that the reflex dorsiflexion of the great toe in spastic paralysis is not just a modification of the normal plantar skin reflex; it is more than that. It is a prominent and integral part of a complex composite reflex, usually called flexor withdrawal reflex. More correctly it should be called: homolateral mass flexion reflex. In a pyramidal lesion the lower extremity manifests a strong tendency toward flexion at all joints. The Babinski reflex is sometimes referred to as extension of the great toe. This is not correct. This movement, though performed by the extensor hallucis longus is—physiologically speaking—of course, a flexion. As in the joints of the hip and knee, this flexion serves to shorten the extremity.

This flexor mechanism, and in particular its most susceptible and responsive fragment, the dorsiflexion of the great toe, is ready to spring into action on receiving stimuli of many kinds: (1) exteroceptive stimuli affecting the skin, especially that of the foot; (2) exteroceptive stimuli affecting the deep sensibility, like deep pressure; (3) active movements, particularly against resistance, in any part of this flexor mechanism; these active movements produce associated movements in every other part of the mechanism but more so in the neighboring than in the more remote parts; and (4) passive movements, particularly brisk movements of even a small portion of the spastically involved muscles. These may bring into play the whole flexor mechanism or—what is more often observed—its neighboring component. Here the effective stimulus is either the stretching of the muscles or the rebounding that follows this stretching.

Especially striking and physiologically significant is the play of this flexor mechanism when elicited by active or passive movements of the distal muscles. Here associated movements, the cardinal sign of any pyramidal lesion, present themselves; in such a lesion the patient loses his ability to perform single, fine movements and performs mass movements instead. A group of functionally integrated muscles, released from pyramidal control, act here collectively as a compact unit, according to the principle "all for one." The neighboring muscles always react more readily and more strongly: the reaction of the remote muscles tapers off and may be hardly discernible. It is therefore understandable that on stimulation of the foot the whole homolateral mass flexion reflex does not always come into full action, but only its most susceptible part—the dorsiflexion of the toe. The joint of the toe is closest to the place of stimulation, the sole.

The very nature of the Babinski reflex proves it to be part of a greater flexor mechanism. This mechanism covers an extensive surface and is rich in trigger points. This impels one to assume, a priori, that the technic of its elicitation could certainly not be limited to the stimulation of the sole alone—the original technic of Babinski.

The fame and laurels of Babinski, whose name became an eponym, aroused neurologists throughout the world and galvanized them into action. By fair means or foul a "bigger and better" Babinski reflex had to be found! The number of modifications of the great toe reflex that followed is legion! A veritable inflation ensued. Unfortunately, many modifiers of the Babinski technic dubbed their own modifications as separate reflexes, signs, symptoms or phenomena and regarded them as something new, something different or at least something better than the technic of Babinski. Some of these completely insignificant modifications have been passed to posterity under the proper names of the modifiers. These names adorn the textbooks, the literature, the hospital charts in ever increasing number and cause disastrous confusion in the minds of students.

The fanciful names and adjectives attached to these reflexes reveal an abysmal misunderstanding of the physiologic mechanism involved. They are particularly objectionable from the didactic point of view. A few of them are the following: antagonistic reflex, Schaefer,[6] 1899; leg phenomenon, Oppenheim,[5] 1902; paradoxic flexor reflex, Gordon,[7] 1904; calf phenomenon, Trömner,[8] 1911; leg joint reflex, Trömner,[9] 1926; resistance reflex, Lichtman,[10] 1941, and new tendon stretch reflex, Gonda,[11] 1942. Truly what Plato said, "They do certainly give very strange and new-fangled names to diseases," applies to the reflexes here.

This list might easily be multiplied: many a modification is only a slight modification of another modification! Some have been "discovered" more than once. As late as 1945 Lenggenhager[12] described a foot ball reflex consisting of dorsiflexion of the toe on stroking the ball of the foot. Most of these "new reflexes" brought only minute and trifling improvements in technic for the elicitation of the Babinski reflex. The little good that came from them has been far outweighed by the utter confusion resulting from their physiologic misinterpretation.

As early as 1909 Yoshimura[13] described the technic of elicitation of the Babinski reflex by stimulation of the skin of the lower extremity: sole, back of the foot, lateral edge of the foot, lower part of the leg and the thigh. He found further that the Babinski reflex occurred on electrical or thermal stimulation. Crafts[14] in 1919 recommended stimulation of the skin over the dorsal surface of the ankle. In 1911 Throckmorton[15] recommended percussion of the skin overlying the upper surface of the metatarsophalangeal joints, but he preferred in 1926[16] to stimulate the outer side of the great toe. Chaddock[17] in 1911 applied a stimulus to the skin beneath the external malleolus.

6. Schaefer: Ueber einen antagonistischen Reflex, Neurol. Centralbl. **18**: 1016, 1899.

7. Gordon, A.: A New Reflex: Paradoxic Flexor Reflex; Its Diagnostic Value, Am. Med. **8**: 971, 1904; Réflexe paradoxal des fléchisseurs. Leurs relations avec le réflexe patellaire et le phénomène de Babinski, Rev. neurol. **12**: 1083, 1904.

8. Trömner, E.: Ueber Modifikationen des Babinski- und Oppenheim-Reflexes und ein neues Fussphänomen (Wadenphänomen), Deutsche med. Wchnschr. **37**: 1700, 1911.

9. Trömner, E.: Neue (Gelenk-) Reflexe der Beine, Klin. Wchnschr. **5**: 1464, 1926.

10. Lichtman, E.: Modified Babinski Reflex (Resistance Reflex), J. Nerv. & Ment. Dis. **93**: 451, 1941.

11. Gonda, V. E.: New Tendon Stretch Reflex: Its Significance in Lesions of the Pyramidal Tracts, Arch. Neurol. & Psychiat. **48**: 531 (Oct.) 1942; Pathologic Pyramidal Tract Signs, M. Clin. North America **29**: 45, 1945.

12. Lenggenhager, K.: Ueber einen neuen, sehr empfindlichen Reflex bei Druck auf die motorischen Bahnen im Zentralnervensystem, Schweiz. med. Wchnschr. **75**: 693, 1945.

13. Yoshimura, K.: Ueber das Babinski'sche Phaenomen, Mitt. d. med. Gesellsch. zu Tokyo **8**: 213, 1909; Ueber die Ausbreitung der reflexogenen Zone für das Babinskiphänomen, Jahrb. f. Psychiat. u. Neurol. **30**: 41, 1909.

14. Crafts, L. M.: An Original Test for the Pathologic Great Toe Sign, J. A. M. A. **73**: 265 (July 26) 1919.

15. Throckmorton, T. B.: A New Method for Eliciting the Extensor Toe Reflex, J. A. M. A. **56**: 1311 (May 6) 1911.

16. Throckmorton, T. B.: Differential Diagnosis of Functional and Organic Diseases of the Nervous System, J. Iowa M. Soc. **16**: 1, 1926; Colorado Med. **23**: 54, 1926.

17. Chaddock, C. G.: A Preliminary Communication Concerning a New Diagnostic Nervous Sign, Interstate M. J. **18**: 742, 1911; An Explanation of the External Malleolar Sign Made with a View to Incite to Study of It to Determine Its Place in Semeiology, J. Missouri M. A. **8**: 138, 1911-1912.

Of the methods which apply deep pressure, the best known are: Oppenheim's [6] (1902) pressure on the tibia; Gordon's [7] (1904) pressure on the calf muscles; Trömner's [8] (1911) massage of the calf muscles, and Austregesilo and Esposel's [18] (1912) pressure on the thigh muscles.

Babinski's reflex on active movement performed with or without resistance was reported by de Souza and de Castro [19] in 1913. Reflex dorsiflexion of the great toe occurred when the patient tried to rise from the supine position or tried to lift his paralyzed leg against resistance. Babinski's reflex may also appear when the patient bends his head or even when he yawns.

Of great practical and theoretic importance is the elicitation of the complete homolateral mass flexion reflex or of the Babinski reflex, which is but a partial homolateral mass flexion reflex, on passive movement of the toes or foot. Bechterew,[20] in 1906, described a reflex flexion in all joints of the lower extremity on passive plantar flexion of the toes and foot. This was rediscovered in 1910 by Marie and Foix [21] and is often called the Marie-Foix or Bechterew-Marie-Foix maneuver.

However, it was an American, the Philadelphia neurologist Wharton Sinkler [22] (1845-1910), who first described this phenomenon eighteen years before Bechterew, in 1888. Neither Bechterew nor Marie-Foix, nor any of the numerous reviewers of this subject has ever mentioned the name of Sinkler. His historic article was not reviewed in the *Neurologisches Centralblatt,* nor was it referred to in any "Handbuch" or textbook of neurology.

Moniz [23] (1916) found that dorsiflexion of the big toe can occur reflexly on passive plantar flexion of the foot, when all other methods of eliciting a reaction fail. Grigorescu [24] (1940) and after him Gonda [11] (1942) and Allen [25] (1945) found dorsiflexion of the great toe on bending the other four toes, or on flicking one of them. "I believe," stated Gonda, "it (the technic of his new tendon stretch reflex) introduces a new principle into the field of neurology, namely a long lasting application of a stimulus." Shades of Sinkler and Bechterew! All these modifications of the Babinski reflex are clearly just variations of the technic for elicitation of the homolateral mass flexion reflex as introduced by these men.

Lewandowsky once sarcastically said "It is remarkable how seldom those who discovered their own technic of the Babinski reflex can find this reflex by employing the technic of Babinski—stroking the sole of the foot." This is true also of all those who came after Lewandowsky; every one of them, describing a new method, invariably asserts that he can find dorsiflexion of the toe more often and with greater ease by his own method than by that of Babinski. The implication is obvious. Despite the endless number of "modifications" and the bombastic claims of their discoverers and rediscoverers, it has been my experience that the good old method of Babinski, carefully applied, is by far the best and most reliable. A method which is really superior still remains to be discovered, after fifty years.

The homolateral mass flexion reflex (the flexor withdrawal reflex), with its outstanding representative component, the dorsiflexion of the great toe, is only one manifestation of the pyramidal lesion. Another comes to light under the influence of the stimulus on the heterolateral leg. While the stimulation of one sole produces a dorsiflexion of the great toe and of the foot homolaterally on the heterolateral leg, simultaneously it may produce plantar flexion of the toes and of the foot. This action on the heterolateral leg may be so strong that a complete reflex stretching of the heterolateral leg ensues. The effect on the heterolateral leg can be seen, particularly in spastic paralysis, on application of the so-called Marie-Foix maneuver: passive plantar flexion of the toes and of the foot. As a result of this maneuver not only does a mass flexion reflex of the homolateral leg ensue, but there is also a mass extensor reflex of the contralateral leg. This alternating flexion and extension of the legs reminds one vividly of the process of climbing. Here the fundamental movements are flexion of one leg and extension of the other.

It is noteworthy that the contralateral mass extension reflex can be elicited in part or fully, only on mild stimuli applied to the other leg. If strong stimuli are applied, bilateral Babinski, or bilateral mass flexion reflex, is elicited. This bilateral flexion of both lower extremities reminds one of the movements of jumping.

In lesions of the pyramidal tract the affected leg shows additional peculiar motor phenomena (reflexes, associated movements, postures) which strengthen the assumption that, with the impaired influence of the pyramidal tract, the reflex movements and the position of the legs resemble the process of climbing.

Adduction and supination of the foot is highly characteristic for the process of climbing. This can be distinctly seen in pictures of primitives climbing trees. The technic of their climbing is different from that used by boys in this country, who "shin up" a mast or rope. Hirschberg [26] (1903), von Monakow [27] (1909), Marie and Meige [28] (1916) described a reflex in spastic paralysis which consisted of adduction with or without supination of the foot on stimulation of the medial border of the sole. The same adduction of the foot also occurs in spastic paralysis as an associated movement. When the patient tries to flex the extended lower extremity against resistance, he simultaneously and irresistibly performs an involuntary adduction of the homolateral foot. This is the well known tibialis phenomenon of Strümpell [29] (1887), which is in my opinion, next to the Babinski reflex, the most valuable and dependable of all pyramidal signs.

A further characteristic of the process of climbing is the automatic abduction of the thigh which accompanies the flexion of the leg. This, too, can be seen

18. Austregesilo, A., and Esposel, F.: Le phénomène de Babinski provoqué par l'excitation de la cuisse, Encéphale **7**: 429, 1912.
19. de Souza, O., and de Castro, A.: Le phénomène de l'extension du gros orteil, associée aux efforts musculaires, Encéphale **8**: 219, 1913.
20. Bechterew: Ueber eine eigentümliche Reflexerscheinung bei Plantarflexion des Fusses und der Zehen in Fällen von Affektion des centralen motorischen Neurons, Neurol. Centralbl. **25**: 290, 1906.
21. Marie, P., and Foix, C.: Sur le retrait réflexe du membre inférieur provoqué par la flexion forcée des orteils, Rev. neurol. **20**: 121, 1910; Les réflexes d'automatisme medullaire, ibid. **23**: 657, 1912.
22. Sinkler, W.: The Toe Reflex, M. News **53**: 611, 1888.
23. Moniz, E.: Le signe de la flexion plantaire du gros orteil avec la jambe en flexion, Rev. neurol. **23**: 173, 1916.
24. Grigorescu, D.: A New Pyramidal Sign, Spitalul **60**: 289, 1940; abstracted, Zentralbl. f. d. ges. Neurol. u. Psychiat. **98**: 667, 1941.
25. Allen, I.: Application of Stretch Reflex to Identification of Lesion of Upper Motor Neuron, New Zealand M. J. **44**: 257, 1945.
26. Hirschberg, R.: Note sur un réflexe adducteur du pied, Rev. neurol. **11**: 762, 1903.
27. von Monakow: Ueber den äusseren und den inneren "Fussrandreflex," Neurol. Centralbl. **28**: 671, 1909.
28. Marie, P., and Meige, H.: Réflexe d'adduction du pied, Rev. neurol. **29**: 420, 1916.
29. Strümpell, A.: Ueber einige bei den Nervenkranken häufig vorkommende abnorme Mitbewegungen im Fusse und in den Zehen, Neurol. Centralbl. **6**: 1, 1887.

in spastic paralysis as an associated movement. When asked to mark time while standing, a hemiplegic lifting his leg simultaneously abducts it. From this, by the way, one may see that the circumduction of the leg in hemiplegia is not, or not only, a movement to avoid dragging of the extended leg but is an involuntary associated movement contingent on the flexion of the thigh.

The position of the leg which is typical of climbing may sometimes be seen in a pronounced form in infantile spastic hemiplegia or diplegia: slight flexion and abduction of the thigh, flexion of the knee, adduction and supination of the foot. The position of both limbs in spastic hemiplegia may best be regarded as one frozen phase of the climbing process: flexion of the upper extremity, extension of the lower. In children with cerebral spastic infantile paralysis one may see at times the other phase of the climbing process: extension of the upper extremities and flexion of the lower.

In the assumption that it is the process of climbing that the spastic extremities are trying to imitate, or be prepared for, one is fortified by the behavior of the last four toes as observed in spastic paralysis on stimulation of the sole. The toes spread. This constitutes the famous "signe d'éventail" of Babinski (1903).[30] Such spreading of the toes in climbing serves the extremely useful and important purpose of increasing the friction surface of the sole. The adduction and supination of the foot serve the same purpose. This power of friction is an essential element which helps in holding the climber. The broader the surface of friction, the better.

But if the adduction and supination of the foot and the spreading of the toes are useful or even essential in climbing, why the dorsiflexion of the great toe? Certainly this does not increase the friction surface and cannot in any way be helpful in climbing! On stimulation of the sole it is striking that the last four toes spread and abduct, while the great toe does not, but goes into dorsiflexion. One of the greatest riddles of the Babinski reflex is this: Why does the great toe not abduct like the other toes? The answer is: the movement of the great toe ought to be abduction, and it was so primarily in the earlier stages of phylogenetic development. But in the course of this development, as the human foot adapted itself more and more to the function of standing and running, the metatarsophalangeal joint of the great toe gradually lost its ability to allow movement of the toe laterally, since it had changed to perform essentially only the upward and downward movement of the toe. The reflex dorsiflexion of the great toe has thus become a substitute for abduction, which it can perform but poorly. On stimulation of the sole the great toe should abduct like all of the others. But the acquired configuration of the joint prevents it from an easily performed abduction, and the big toe performs the next best movement possible, that of dorsiflexion. On careful examination one can sometimes observe this primitive tendency toward abduction, which is discernible despite the pronounced dorsiflexion.

One can see this abduction also in some photographic illustrations of the Babinski reflex. Thus, even the misperformance of the great toe, its forced dorsiflexion instead of the natural abduction, fits in the concept that it is the complex movement of climbing that is liberated and comes to the fore when the control exercised by the pyramidal tract is impaired. What is seen in the resulting spastic paralysis, the reflexes, the associated movements and the posture of climbing, all speaks a clear and convincing language.

Still another complex movement is released from control when the pyramidal tracts are damaged. This is the movement of walking or running. In pyramidal lesions besides the Babinski reflex and its numerous modifications other tests of quite a different nature have been described. These tests often carry proper names, like those of Grasset and Gaussel[31] (1905), Bychowski[32] (1907), Hoover[33] (1908), Cacciapuoti[34] (1910) and Skoblo[35] (1928). If one considers these tests physiologically, it is easy to find one common denominator, since they can all be explained on a single basis. This consists in the following: when the patient, lying supine, moves one leg upward—especially against resistance—the other leg has a tendency to move downward. This is a vivid reminder of the process of walking or running, which process consists essentially of alternating back and forward movements of the legs.

Thus the fundamental motor phenomena observed in spastic paralysis can be reduced to two sets of movements—that of climbing and that of running. Elements of both are contained in the complex motor manifestations of spastic paralysis and may be elicited reflexly. On the other hand, climbing and running can best be regarded as manifestations of a flight reflex. This flight occurs in the vertical or the horizontal plane.

Thus, all the principal motor phenomena in spastic paralysis (the homolateral mass flexion reflex, the heterolateral mass extension reflex, the reflex adduction and supination of the foot, the reflex abduction of the thigh, the tendency toward alternating "automatic" back and forward movements of the lower extremities) are best viewed as manifestations of a flight reflex with elements of both climbing and running.

The homolateral mass flexion reflex involving the whole lower extremity, elicited together with the Babinski response on stimulation of the sole, is often called flexor withdrawal reflex. This name is not entirely adequate. The movement is not just a simple, passive withdrawal. As has been seen, it is a component of a greater, more complex, more active mass movement. Babinski coined the name "reflex of defense." This too is inadequate, for the simple reason that the reflex movements reveal more than just passive defense. The flight through climbing or running can hardly be called defense. The name "reflexes of spinal automatism" is extremely popular in designating the reflex phenomena in spastic paralysis. This term is not suitable because it is too general and lacks description of the exact nature of the movements; and besides, the movements are not automatic in the true sense of the word.

30. Babinski, J.: De l'abduction des orteils (signe de l'éventail), Rev. neurol. **11**: 1205, 1903.

31. Grasset, J., and Gaussel, A.: Un signe de paralysie organique du membre inférieur, Rev. neurol. **13**: 881, 1905.

32. Bychowski, Z.: Zur Phänomenologie der cerebralen Hemiplegie, Neurol. Centralbl. **26**: 154, 1907.

33. Hoover, C. F.: A New Sign for the Detection of Malingering and Functional Paresis of the Lower Extremities, J. A. M. A. **51**: 746 (Aug. 29) 1908.

34. Cacciapuoti, G.-B.: Nuovi segni di paralisi organica dell'arto inferiore, Ann. di nevrol. **28**: 1, 1910; Sur les mouvements associés du membre inférieur malade chez les hémiplégiques organiques, Rev. neurol. **21**: 416, 1911.

35. Skoblo, M.: Ueber eine neue Form der hemiplegischen Mitbewegungen, Deutsche Ztschr. f. Nervenh. **104**: 281, 1928.

In summary, Babinski's reflex, when viewed physiologically and phylogenetically, is not just a skin reflex, as Babinski assumed, but a part—and a most susceptible and obvious part—of a homolateral mass flexion reflex. With this reflex is coordinated a contralateral mass extension reflex. These two movements represent rudimentary manifestations of the process of climbing. Added to this there is, in spastic paralysis, a tendency of the lower extremities to move alternately backward and forward. This represents the rudiments of running or walking. Taken all together, the release phenomena manifested in a pyramidal lesion can be regarded as manifestations of a flight reflex.

The observation reported by Babinski in 1896, which at first glance might appear as petty and trifling, has not only revolutionized the neurologic examination but has proved extremely fruitful in neurophysiology. It has opened new vistas. It has raised many questions in the physiology and the pathophysiology of motility which even now, after fifty years, can be only partially answered. Only some of the problems of this reflex have been briefly discussed here. To the Babinski reflex may be justly applied the statement of Mark Twain: "There is something fascinating about science. One gets such wholesale returns of conjectures out of such a trifling investment of fact."

HINTS IN GENERAL SURGERY

R. B. ROBINS, M.D.
Camden, Ark.

The family physician, even though he does not practice surgery, is interested in surgical developments. Many general practitioners do what is known as ordinary general surgery and do it well.

The purpose of this paper is briefly to outline and summarize some of the developments in general surgery in recent years which should be of interest to the general practitioner.

ANESTHESIA

Improvements in anesthesia have been of tremendous help to the general surgeon. At the present time one of the most popular types of general anesthesia is the combined use of "pentothal sodium"—cyclopropane and curare. The use of 2.5 per cent "pentothal sodium" solution intravenously makes a smooth induction, to be followed by cyclopropane or ethylene gas. Then the intravenous use of curare ("intocostrin") at the time of the incision gives marvelous muscular relaxation. This type of anesthesia enables the surgeon to operate with ease.

It is well to remember that neostigmine combats overdosage of curare and that picrotoxin administered intravenously is the antidote for overdosage of the barbiturates.

IMPROVED PREOPERATIVE AND POSTOPERATIVE CARE AND OPERATIVE TECHNIC

Improved methods of preoperative and postoperative care and improved operative technic in the past few years have made surgical treatment more successful. Some of the following points are given more consideration today than formerly: (*a*) careful observation before operation for evidence of infection of the upper respiratory tract; (*b*) attention to dental hygiene—preoperative care of infected teeth and infected gums; (*c*) sharp dissection at the operation; (*d*) meticulous hemostasis; (*e*) ligation of the blood vessels themselves rather than mass tissue ligation; (*f*) gentle handling of tissues and gentleness in the handling of retractors; (*g*) avoidance of rough handling of viscera; (*h*) comfortable dressing of wounds so that respiration is not interfered with and circulation is not impeded; (*i*) the use of the Trendelenburg position after operation to promote postural drainage of the respiratory tract; (*j*) frequent changes of the position of the patient in bed, and (*k*) early ambulation. Early ambulation is one of the most remarkable advancements in surgery in the past few years. It is one of the most radical recent changes in postoperative care, but it has established its great value. Patients are now up and about within forty-eight to seventy-two hours, whereas a few years ago they were kept in bed from one to two weeks. Early ambulation speeds the recovery of the patient, reduces his financial outlay for hospitalization, returns him to his work earlier and makes more hospital beds available.

NEWER AGENTS IN SURGEON'S ARMAMENTARIUM

In the past few years the surgeon has had a few new agents added to his armamentarium which have proved of value: (*a*) intravenous administration of alcohol in dextrose solution, which is an aid in sedation; (*b*) intravenous administration of amino acids for the nourishment of patients who need protein; (*c*) use of heparin sodium and dicumarol to overcome thrombotic phenomena; (*d*) parenteral administration of ascorbic acid for the promotion of wound healing; (*e*) the Rh factor, which gives an explanation to the surgeon for some of his blood transfusion reactions—persons who have the Rh factor in their blood are called Rh positive and those who do not have it are called Rh negative; it is said that 85 per cent of white persons are Rh-positive, leaving 15 per cent who are Rh-negative; the transfusion of Rh-positive blood into an Rh-negative person may sensitize the recipient to Rh-positive blood, and repeated transfusions of Rh-positive blood may lead to transfusion reactions; (*f*) blood plasma; this may be a life-saving agent in acute emergencies and in burns, but it is admitted today that the best treatment for blood loss is still whole blood transfusions; plasma may be valuable until whole blood is available; (*g*) absorbable hemostatic agents such as fibrin foam, oxidized cellulose and the gelatin sponge with thrombin solution for the control of hemorrhage, and (*h*) chemotherapy and antibiotics. The practice of placing sulfonamide drugs directly into the peritoneal cavity and in other wounds seems to be passing into disuse because of the realization that they have their greatest value systemically and must be administered either orally or parenterally. Chemotherapy is not a substitute for good surgery. If the organism involved in a surgical infection can be identified, then the specific sulfonamide drug or antibiotic which has proved to be most effective against that particular organism should be employed. Peritonitis is frequently due to such a mixture of pathogenic organisms that the simultaneous use of all antibacterial agents is justified. The combined use of penicillin, streptomycin and the sulfonamide drugs seems logical.

Read before the Section on General Practice of Medicine at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

The following portion of this paper will be devoted to a brief discussion of matters of interest in some of the various specific fields of general surgery.

SURGERY OF THE GALLBLADDER

It is well known that cholecystectomy is usually the operation of choice in disease of the gallbladder, but it is well to remember that cholecystostomy has not entirely lost its place in surgery of the gallbladder. During the early days when cholecystostomy was in vogue 7 out of 10 patients never had any further trouble after the operation. It is still frequently the operation of choice in the old and gravely ill patient, in empyema of the gallbladder, in the extremely fat patient, where it is technically difficult to do a removal, in the perforated gallbladder and possibly in the case of gallstones when the gallbladder itself is apparently normal.

SURGICAL TREATMENT OF HERNIA

Several years ago there was great enthusiasm over the country regarding the injection treatment of hernia. This method of treatment has not stood the test of time. It seems to be the feeling today that it has no place in the treatment of hernia and is a procedure that is condemned.

SURGICAL TREATMENT OF THE THYROID GLAND

As the years have gone by it has been realized more and more that one of the great secrets to successful surgical treatment of the thyroid gland is proper preoperative preparation of the patient. The aims of preoperative preparation have been to lower the metabolic rate to as near normal as possible, to produce a remission of symptoms and to secure a gain in weight. The means of accomplishing these aims today are bed rest, sedation, diet with adequate vitamins, Lugol's solution and thiouracil.

The only comparatively recent agent used in this preoperative routine is thiouracil. At first it was thought that possibly in thiouracil a drug had been developed which would serve as a medical treatment for thyrotoxicosis and that surgical treatment could be eliminated. Thiouracil, however, is an agent only to be used in preparing patients for surgical treatment. It has been of great value in speeding up the preoperative preparation, for it will drop the basal metabolic rate practically 1 point a day. One of the present routines of usage is to give 0.2 Gm. three times daily until the basal metabolic rate approaches normal, then discontinue it and use Lugol's solution for ten days prior to operation. The reason for this is that thiouracil seems to increase the vascularity and friability of the gland and iodine seems to overcome this to a great extent.

Thiouracil is not without its toxic effects, and constant vigilance must be maintained by frequent white blood cell counts to detect the possibility of agranulocytosis. There have been fatalities from the use of the drug. If the white cell count falls as low as 3,500 or the differential count shows a fall to 30 per cent neutrophils, the drug should be discontinued and proper therapy instituted such as whole blood transfusions, penicillin and possibly liver extract, although its efficacy is doubted.

There has appeared on the horizon a treatment for toxic goiter based on atomic energy, and that is the use of radioactive iodine. The use of any type of radiation may have late untoward effects, and it is felt that this method of treatment will require future extended study in order to determine its definite status in therapy.

INTESTINAL OBSTRUCTION

So many persons in this country have had operations on the abdomen—and their number has been increased by the many returning veterans who had abdominal injuries—that the general practitioner must be ever alert for the possibility of obstruction in patients who have abdominal symptoms.

The classical symptoms are not at first always present, and one must not wait for the "stepladder abdomen," fecal vomiting and the roentgenogram to make a diagnosis. Severe, intermittent, crampy abdominal pains with nausea and vomiting must always put one on the alert for possible obstruction. Obstructions of the large bowel develop more slowly and more mildly than those of the small bowel. The stethoscope has great value, and its use is as important as it is in searching for pathologic changes in the chest.

There is one significant point to bear in mind today: that is, the use of the Levine or Miller-Abbott tube with its attendant deflation and the use of glucose may improve the patient so dramatically that there is a tendency to be misled regarding the true diagnosis and proper surgical treatment.

CANCER OF THE BOWEL

With the increasing number of older persons in the population it behooves the general practitioner to keep cancer constantly in his mind as a diagnostic possibility. Cancer of the large bowel accounts for thousands of deaths in this country annually, and in many instances the diagnosis is delayed too long for adequate surgical treatment.

Any symptom sufficient to attract attention to the bowel may be a symptom of cancer. About two thirds of the cancers of the colon occur in the left colon, while one third occur in the right colon. In the right colon constitutional symptoms, such as weakness, loss of weight and anemia, predominate, while in the left colon obstructive symptoms with blood in the stools are the predominating signals. Lesions in the rectum and anus produce changes in bowel habits and alterations in the character of the stools. Seventy-five per cent of the lesions of the rectum and anus can be diagnosed by simply making a rectal examination, and it is said that the duration of the existence of the lesion can be determined in this manner. It takes around six months on the average for a lesion to involve one fourth of the circumference of the bowel. Proctosigmoidoscopic examinations are essential, as well as roentgen study of the colon.

Improvements in preoperative and postoperative care, such as the use of sulfasuxidine and large numbers of blood transfusions, have made surgical treatment of the colon much more successful than formerly.

SURGICAL TREATMENT OF THE BREAST

Preoperative irradiation has lost its vogue in the surgical management of cancer of the breast because it results in more bleeding at the time of operation and causes a delay in wound healing, and because statistics have shown that it has not contributed to an increase in the percentage of five year survivals.

During the past few years a great deal of attention has been given the sex hormone method of therapy in inoperable cases of cancer of the breast. Surgical

removal of the ovaries in women who have not reached the menopause, roentgen castration and in recent years testosterone have been used for this purpose. It is true that life may be prolonged probably for a short time, but in too many instances it means the prolongation of human misery in a dying person.

SURGICAL TREATMENT OF THE STOMACH

Vagotomy or gastric neurectomy has been the most recent addition to the surgical treatment of peptic ulcer. The theory behind cutting of the vagus nerves is to prevent these nerves from carrying impulses, originating in the brain, to the stomach. Vagotomy decreases gastric secretion and also gastric motility. Many of the reports look very good, and there is no doubt that this operation of vagus resection will find its place in the surgical treatment of peptic ulcer.

CONCLUSION

An attempt has been made in this paper briefly to summarize some practical hints in general surgery which are thought to be of interest to the general practitioner.

ABSTRACT OF DISCUSSION

DR. PHILIP THOREK, Chicago: Dr. Robins and I have discussed the subject of vagotomy pro and con, and I want to take this opportunity just to say a few words. First, On what patient would you do a vagotomy? The best answer to that is, "If I had an ulcer, what would I want done?" As a surgeon, I would state that I would stay as far away from a surgeon as I possibly could. As a surgeon, if I had an ulcer, I would quit drinking, I would stop smoking and I would go on a rigid ulcer regimen. I would practice that psychosomatic something that they talk about and really give it a good trial. However, if under that careful routine and regimen my ulcer failed to respond after having a good chance to heal, I would next ask: "Is my ulcer a gastric ulcer or is it a duodenal ulcer?" If my gastric ulcer did not respond to medical treatment, I would want the ulcer and a good portion of the stomach removed, because every gastric ulcer is a potential malignant growth. If my ulcer was a duodenal ulcer, however, and did not respond to good medical routine, I would want a vagotomy. Therefore, indication 1 for vagotomy is a duodenal ulcer which fails to respond to good medical care. Indication 2 for vagotomy is a jejunal ulcer or an anastomotic ulcer which developed after a gastrojejunostomy. Concerning the approach to vagotomy, shall one utilize a transthoracic or a transabdominal approach? The transabdominal approach is preferred, since it permits examination of the lesion and also allows the surgeon to do a gastroenterostomy if this is deemed advisable. About anesthesia, one must have good exposure; hence a competent anesthetist is a primary prerequisite. The anesthesias of choice are: high spinal, intratracheal and cyclopropane and curare. As to exposure: the bigger the surgeon, the bigger the incision. The incision which I prefer is one which splits the left rectus muscle, extending from the angle between the xiphoid and the costal cartilage to a point well below the umbilicus. To expose the esophagus the left triangular ligament of the liver must be severed; it is a bloodless fold, which when cut permits the left lobe of the liver to be retracted to the right. Do not look for the vagi. Feel for them. The vagus nerves cannot be seen as well as they can be felt, and they feel like taut violin strings to the sense of touch. About replacement of viscera, do not resuture the cut triangular ligament. It heals beautifully and well within fifteen days.

About postoperative care, it is a good plan to keep a Levine tube in the patient with constant intragastric siphonage for a period of three to five days, and in this way most of the postoperative vagal atony can be prevented.

Special Articles

NITROGEN TRICHLORIDE TREATED ("AGENIZED") FLOUR

Following is a letter sent by the Food and Nutrition Board of the National Research Council, Frank G. Boudreau, Chairman, to Dr. Paul B. Dunbar, Commissioner of Foods and Drugs.

November 8, 1947

Dr. P. B. Dunbar
Commissioner of Foods and Drugs
Federal Security Agency
Washington, D. C.

Dear Dr. Dunbar:

Pursuant to your letter of June 6, 1947, our Board has kept itself informed of the progress of "agene" (nitrogen trichloride) investigations through communication and conference with Dr. C. A. Elvehjem, Dr. E. M. Nelson, Dr. Robert E. Johnson, and the firm of Wallace & Tiernan Products, Inc. All have been most helpful and cooperative and are in substantial agreement in their findings.

It appears from reports of these investigators and the publications of Dr. Mellanby that dogs and several other species of animals are susceptible to a toxic principle(s) produced by the action of nitrogen trichloride on the proteins of flour or on certain other food proteins. Dogs are the most susceptible. In all these studies the level of "agenized" flour necessary to produce a reaction in dogs is substantially higher than the level of flour which would be used in an ordinary human diet. The symptoms in rabbits, cats and ferrets appear comparable with those in dogs, though considerably larger or more prolonged dosing is required to produce them in cats and ferrets. Monkeys show no convulsions but in some instances have been reported to display certain encephalographic changes after consumption of highly "agenized" flour. In rats an excretion of porphyrin has been reported, but agreement regarding its significance has not been reached. Chickens, guinea pigs and hamsters evince no toxic reactions.

Dr. Elvehjem reports that experiments on 12 human beings have revealed no symptoms or encephalographic changes after eating "agenized" flour or "agenized" gluten in amounts and for periods of time which would unfailingly produce hysteria in dogs.

After study of these facts by its committees, the Food and Nutrition Board at its meeting November 7 authorized the following statement of its views.

It is the judgment of this Board that in view of the susceptibility of several mammalian species there is a definite risk of injury to human beings. Such injury to some element of the population may yet be revealed by future observation. Accordingly, the Board believes it unwise to contemplate the continued use of "agene" beyond the minimum period required for readjustment.

The Board feels that the following course should be followed:

1. Investigations should be continued to isolate and identify the toxic product(s) involved, to determine more conclusively whether human beings are in some degree susceptible, to determine precisely the toxic dosage for those species which are susceptible and to develop a method for quantitative determination of the toxic substance for flour inspection purposes.
2. Alternative processes of flour treatment, especially with chlorine or chlorine dioxide, should be thoroughly explored to make certain that flour so treated is free from toxic effects.
3. Development of preferred alternative processes should be encouraged so that suitable commercial equipment and controls may be made available to mills as early as possible. The Board recognizes that extensive engineering efforts are being made to overcome difficulties in the application

of chlorine dioxide to flour, and according to present reports many months of work may be required for a satisfactory solution of this phase of the problem.

4. In the meantime, there should be reduction of the use of "agene." It should be employed only on such varieties and lots of wheat as may require it, and in all cases of its use the amount of nitrogen trichloride applied per unit weight of flour should be restricted to the minimum consistent with a product which can be used satisfactorily in bakeries.

The Board considers that the present food crisis might be aggravated by a more drastic and immediate restriction of familiar practice at this time. It might decrease output of bakeries, increase costs because of new technical difficulties, or waste flour by spoilage of batches in the bakeshop.

We consider it fortunate that suppliers of "agene" and equipment for its use, as well as the leading millers and bakers, appear ready to comply voluntarily with considered measures recommended by responsible bodies of scientists and public health officials. If this Board can be of further assistance to you in this matter, we shall be pleased to hear from you.

Sincerely yours,

FRANK G. BOUDREAU, Chairman.

CONTROL OF RABIES

Philadelphia, April 9, 1947

Dr. R. A. Kelser, chairman, Special Committee on Rabies, American Veterinary Medical Association, invited representatives of the organizations indicated to meet at the University of Pennsylvania, Philadelphia, April 9, 1947 to discuss a rabies control program:

American Public Health Association
American Medical Association
U. S. Public Health Service
Bureau of Animal Industry, U. S. Department of Agriculture
U. S. Livestock Sanitary Association
American Animal Hospital Association
American Veterinary Medical Association

The Conference unanimously agreed on the following principles and considerations in connection with such rabies control program as might be undertaken on a national basis: (*a*) Rabies in the United States is of sufficient importance to make it desirable that the federal government participate in means for its control through cooperation with the several states, contributing funds and personnel. (*b*) Rabies in man is generally a disease reportable to local and state health authorities. Rabies in lower animals should be specifically a reportable disease to be reported to public health or other responsible state health authority. It should be reported by states, with place of occurrence specified. Through a central federal agency, the consolidated information should be assembled, analyzed and distributed to all states, agencies and individuals having responsibility in a rabies control program. (*c*) In a program for the control of rabies in the United States prime consideration must be given to (1) adequate diagnostic facilities, (2) the control of animals capable of transmitting the disease and (3) mass immunization of susceptible animals, particularly dogs.

Diagnostic Facilities.—To be considered adequate, facilities for the diagnosis of rabies should include not only provision for the microscopic examination of brain specimens from suspected animals but also means for the inoculation of laboratory test animals. The number and location of laboratories performing services connected with the diagnosis of rabies should be adequate to provide prompt service within reasonable distances. Further, facilities should be provided for maintenance of suspected cases of rabies in lower animals under proper veterinary observation.

Control of Animals (Dogs, Cats and Wild Life) Capable of Transmitting Rabies.—Control measures for animals capable of transmitting rabies should include:

(*a*) Licensing of all dogs.

(*b*) Proper disposition of ownerless, unwanted and stray domestic animal pets.

(*c*) As soon as rabies appears in a community, strict control of all dogs should be enforced for whatever period of time may be considered necessary. Dogs should not be permitted to run at large but should be properly confined on their owner's premises and only be permitted away from same when under proper restraint by a responsible individual.

(*d*) Dogs which have bitten persons or other animals and dogs which are suspected of having rabies should be confined in a suitable, authorized place under veterinary supervision for a period of not less than fourteen days.

(*e*) Dogs known to have been exposed to rabies should be destroyed or kept confined for a period of not less than six months.

(*f*) Dogs under 6 months of age, being particularly susceptible and less satisfactorily immunized than older animals, should be confined until the area is certified as officially free of rabies.

(*g*) Adequate provisions and facilities for enforcing all regulations and requirements connected with the control program should be provided.

(*h*) The control program should be continued for a period of at least ninety days subsequent to the last reported case of the disease.

(*i*) Should rabies be found to exist in wild life prompt arrangements should be made for active cooperation with the U. S. Fish and Wild Life Service and the analogous agency of the state involved. In this connection, when rabies has become established in wild species a program for reducing the number of individuals of the affected species should be instituted and continued until the disease disappears. Routine brain examinations should be made to determine the incidence of the disease in the wild species and to determine when it has abated.

Mass Immunization.—The vaccination of dogs, combined with other control measures as indicated herein, provides the most satisfactory method for the prompt control of rabies. Vaccinated dogs, when properly tagged, may be allowed at large thirty days after vaccination. Vaccination should consist of at least one injection of an immunizing dose of an accepted canine rabies vaccine. Evidence indicates that a single 5 cc. subcutaneous injection of an approved vaccine is effective in a mass vaccination program. However, the injection of three doses of vaccine in 5 cc. amounts a week apart provides greater immunization and should be advised when practical. For permanently reducing the number of susceptible dogs, it should be suggested that owners have their dogs immunized annually.

In any rabies control program it is deemed essential that a local (county or municipal) Rabies Advisory Committee be organized to facilitate operational functions and cooperative effort. Further, the Conference agreed that an educational program should be launched by appropriate authorization, representing federal, state and local agencies, to explain the necessity of control measures, including the efficacy of the rabies vaccines now approved by the U. S. Bureau of Animal Industry and the National Institute of Health. The object of such an educational campaign is to acquaint the public and owners of dogs and other pet animals with pertinent facts concerning rabies and the reasons and importance of the measures taken for the control and eradication of the malady and the value of specific immunization against rabies. The advisability and desirability of utilizing vaccination not only for the

control of the disease during an outbreak but also in building up and maintaining a relatively highly immune dog population through the annual vaccination of dogs with rabies vaccine should be pointed out.

In view of the essential existing responsibility of the Bureau of Animal Industry of the U. S. Department of Agriculture, the U. S. Public Health Service and the U. S. Fish and Wild Life Service, this Conference recommended that the function of coordinating a campaign for the control of rabies on a national scale be vested jointly in these three agencies. A plan for accomplishing this on a cooperative basis can undoubtedly be worked out through consultation of representatives of the agencies involved.

Clinical Notes, Suggestions and New Instruments

STREPTOMYCIN-RESISTANT DIPHTHERIA

LIEUTENANT COLONEL WELDON J. WALKER
Medical Corps, United States Army
CAPT. FRANKLIN C. MASSEY
and
CAPT. F. KESHVAR MOSTOFI
Medical Corps, Army of the United States

Reports in the literature indicate in vitro sensitivity of Corynebacterium diphtheriae to both penicillin[1] and streptomycin.[2] Skinner[3] reported favorable results when relatively small doses of penicillin (25,000 to 100,000 units daily) were given to 28 patients who repeatedly had positive throat cultures. Davison[4] reported the successful treatment of a case of acute pharyngotonsillar diphtheria with penicillin (160,000 units daily).

To July 1, 1946 we were unable to find reports on the treatment of diphtheria with streptomycin in the English literature. The present case furnishes such a report; this patient was treated with large doses of both penicillin and streptomycin without apparent effect on the course of the disease or on the persistently positive throat cultures.

Statistics indicate an apparent increased incidence of diphtheria in many sections of the country.[5] Clinical report of a case which exhibited the characteristic features of hypertoxic diphtheria as described by McSweeney,[6] of Dublin, Eire, should be of value. As in some cases which he described, in its early stages the disease of our patient was mistakenly diagnosed as quinsy (acute suppurative tonsillitis).

REPORT OF CASE

A white boy aged 17 was receiving hospital treatment for chronic conjunctivitis caused by Staphylococcus aureus. On May 30, 1946 he complained of a chill, fever, sore throat and headache of eight hours' duration. Examination revealed that the temperature was 103 F., the pulse rate 120 per minute and the respiratory rate 24 per minute. There was pronounced faucial edema, more decided on the left, with moderate swelling and hard induration in the left submaxillary area. The disease was diagnosed as early peritonsillar abscess, and 50,000 units of penicillin was given intramuscularly every three hours. The following day (May 31) swelling had increased and involved the soft palate; the temperature rose to 104 F. A left peritonsillar incision was made, but a purulent exudate was not obtained. On June 1 swelling in the neck and submaxillary region increased. The patient was thought to have a diffuse cellulitis of the neck (Ludwig's angina). Respiratory difficulty developed and an emergency tracheotomy was performed; no membrane was observed in the trachea. On June 2 a faucial membrane was first noted. The throat smear was not diagnostic, and culture showed only Streptococcus viridans and Staph. aureus. Throat smears were positive for C. diphtheriae on the following day, June 3. At this time the patient was transferred to the communicable disease section of the hospital. Examination then, four days after the onset of sickness, revealed an acutely ill white boy with pronounced faucial and soft palate edema. The soft palate bulged forward into the mouth. An adherent gray membrane involved both fauces and appeared plastered on the left half of the soft palate. There was well defined hard cervical swelling with a bull-neck appearance. The heart was regular in rate and rhythm but irregular in force, with a pulse rate of 68 and blood pressure of 90 mm. of mercury systolic and 50 diastolic. Electrocardiographic tracings indicated prolongation of the QRS complex to 0.12 second, showing right bundle branch block.

On June 3 the patient was given 100 000 units of diphtheria antitoxin intravenously—the penicillin dosage was continued at 40,000 units every three hours. A high dextrose intake was maintained. The next day an additional 40,000 units of antitoxin was given intramuscularly. A new complaint developed on the same day, that of pain in the precordial region. The pulse rate dropped to 48 beats per minute, and the electrocardiographic tracing indicated complete heart block. Cervical edema and swelling started to diminish shortly after the injection of diphtheria antitoxin. By June 5 the membrane on the soft palate had sloughed, while throat cultures were positive for virulent C. diphtheriae. The blood pressure remained low and complete heart block persisted. Forty thousand additional units of diphtheria antitoxin was given intramuscularly on June 6. The pulse rate dropped to 34, and oxygen was administered for cyanosis. Two days later, on June 8, an indurated ulcer 1.5 cm. in diameter persisted on the soft palate and yielded repeated positive cultures for diphtheria organisms, which were sensitive to streptomycin in a dilution of 200 units per cubic centimeter. The administration of penicillin was discontinued, and it was decided to give the patient a trial of therapy with streptomycin. This was done although the organism was but slightly sensitive to the drug and with the knowledge that the patient was near death due to the advanced myocardial involvement. Streptomycin, 200,000 units (0.2 Gm.), was given intramuscularly every two hours. An additional 60,000 units of diphtheria antitoxin was administered at this time. Throat cultures remained positive for C. diphtheriae on June 9 and 10. The blood pressure dropped to 70 systolic and 20 mm. diastolic of mercury and the pulse rate to 39 per minute, necessitating interval injections of caffeine and ephedrine. On June 11, for the first time, the liver was enlarged 2 to 3 fingerbreadths below the costal margin and there was shifting dulness in the abdomen. On June 12 the patient died at 4:48 a. m. of cardiac failure with complete heart block.

SUMMARY OF THERAPY DURING THIRTEEN DAYS OF PATIENT'S ILLNESS

Penicillin.—A total dosage of 3,280,000 units of penicillin was given during the first nine days of illness with an average daily dose of 364,000 units.

Streptomycin.—A total dosage of 8,700,000 units of streptomycin was given during the last three and one half days of the illness, with an average daily dose of 2,400,000 units.

Diphtheria Antitoxin.—One hundred thousand units of diphtheria antitoxin was given on the fourth day of illness. Additional doses totalling 140,000 units were given between the fourth and ninth days of illness.

Response to Treatment.—Cervical and faucial edema subsided rapidly with separation of the false membrane following the initial dose of diphtheria antitoxin. There was no clinical or bacteriologic response to the administration of either penicillin or streptomycin.

From the Medical and Laboratory Services of the Madigan General Hospital, Tacoma, Wash.; Senior Resident in Internal Medicine, Lieut. Col. Walker, and Chief of the Cardiovascular Section, Captain Massey. Colonel Maxwell G. Keeler, Medical Corps, United States Army, commanding.

1. Abraham, E. P., and others: Further Observations on Penicillin, Lancet **2**: 177-188, 1941.
2. Streptomycin: A Review of Current Experience, Bull. U. S. Army M. Dept. **5**: 531-537, 1946.
3. Skinner, J. W.: Penicillin in Persistent Diphtheria, U. S. Nav. M. Bull. **45**: 264-266, 1945.
4. Davison, S.: The Use of Penicillin in Acute Sore Throat, J. A. M. A. **131**: 1050-1052 (July 27) 1946.
5. Diphtheria Mortality, editorial, J. A. M. A. **131**: 1062 (July 27) 1946.
6. McSweeney, C. J.: Treatment of Hypertoxic Diphtheria with Avid Serum, Lancet **1**: 208-211, 1941.

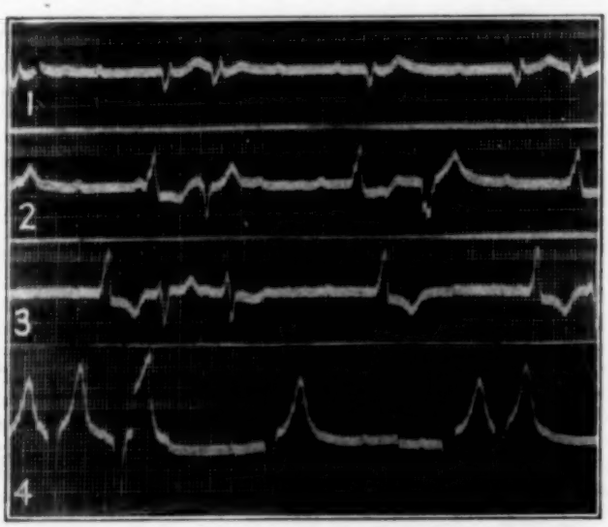
AUTOPSY OBSERVATIONS

An autopsy was performed four and one-half hours after death.

The tracheotomy opening was patent. The larynx showed some edema but no ulceration or exudate. The air passages were open. Between the fourth and the sixth tracheal rings was a lateral area of ulceration 2 by 3 cm. which was covered by a thin membrane in which diphtheria organisms were demonstrable microscopically. The base of the ulcer extended to the cartilage in one area.

The pleural cavities each contained 400 cc. of clear, straw-colored fluid. The right lung weighed 520 Gm., the left 480. Within some of the terminal bronchioles and pulmonary alveoli bits of aspirated diphtheritic membrane could be identified. The remainder of the lung revealed congestion.

The pericardial sac contained 100 cc. of clear fluid. Numerous petechial hemorrhages were seen in the epicardium. The heart weighed 420 Gm. and displayed considerable dilatation and some hypertrophy of the right chambers. The myocardium was soft and had a mottled, purplish brown appearance. No coronary or valvular disease was present. Microscopically there was extensive but patchy interstitial myocarditis with necrosis of the myocardium and infiltration with monocytes, plasma cells, lymphocytes, polymorphonuclear leukocytes and eosinophils.



Electrocardiographic tracing of June 6, 1946, demonstrating complete heart block and a complex arrythmia. In addition to the frequent premature ventricular contractions the development of intraventricular block is apparent. The leads shown are the conventional limb leads (1, 2 and 3) and lead CF^4.

Except in the region of the atrioventricular node the myocardium of the auricles definitely appeared to be less involved than that of the ventricles.

The liver weighed 2,100 Gm. and presented a mottled, dark-brownish appearance. There was congestion of the central veins and patchy midzonal necrosis of varying degree, exhibiting infiltration with polymorphonuclears, lymphocytes and monocytes.

The adrenals manifested some lipoid depletion but no areas of hemorrhage or necrosis.

The kidneys weighed 220 Gm. each and microscopically presented extensive granularity and vacuolization of the cytoplasm of the tubular epithelium.

The brain weighed 1,450 Gm. and displayed edema and congestion.

Anatomically, the diagnosis was diphtheria, pharyngeal and tracheal, with acute toxic interstitial myocarditis.

COMMENT

In this case correct diagnosis was not made until four days after the onset of illness. There developed a full-blown fulminating diphtheria in spite of the administration of 50,000 units of penicillin every three hours from the first day of the disease. The patient displayed evidence of cardiac damage in the form of right bundle branch block at the time he first received diphtheria antitoxin, four days after the onset of symptoms. Complete heart block developed the following day and persisted until his death eight days later. It was unquestionably this early cardiac damage which resulted in the fatal outcome. Over 90 per cent of diphtheria cases in which there once has developed complete heart block probably end fatally regardless of subsequent therapy.[7] Notwithstanding this, streptomycin therapy was instituted. However, the persistently positive throat cultures demonstrated the ineffectiveness of the drug in this particular case. The organism was only slightly sensitive in vitro.

The causative organism in this case gave a positive virulence test on guinea pig inoculation. Whether it was of the mitis or gravis strain was not determined. However, Seligmann[8] has stated that in this country there is little difference in the death rates for the two types.

ELECTROCARDIOGRAPHIC STUDIES

Electrocardiograms were taken every twenty-four hours from the fourth until the thirteenth day of illness, at which time death occurred. Electrocardiographic tracings revealed the development of (1) heart block with a progressively increasing ratio of auricular to ventricular contractions; (2) progressive intraventricular block, and (3) continual shifting of the cardiac axis to the right.

The electrocardiogram of June 3 did not show delayed auriculoventricular conduction, but the following day complete auriculoventricular block developed, giving rise to a tracing which manifested a complex arrhythmia.[9] Progressive diminution in the rate of the ventricular contractions occurred. An illustrative tracing, that of June 6, demonstrates the nature of the conduction defect which later proved to be malignant.

This case exhibited the observations of hypertoxic diphtheria as described by McSweeney.[6] The pathognomonic manifestations are: (1) striking faucial edema, which may be mistaken frequently for acute suppurative tonsillitis, and (2) a rapidly developing, diffuse cervical cellulitis, which involves all the tissues of the sides and front of the neck and extends 2 to 4 inches (5 to 10 cm.) below the lower jaw; this "bull-neck" is stated to be invariably present in hypertoxic diphtheria and to subside with the clearing of the diphtheritic membrane and the disappearance of faucial edema; (3) the prognosis is stated to be altered radically once the membrane involves the soft palate; subsequent cardiac complications are to be expected. The foregoing observations indicate a severe infection with a grave prognosis. Cardiac complications occurring as early as four days after the onset of illness are, however, rare even in such hypertoxic diphtheria. In this case the left peritonsillar incision on the second day of illness probably increased the amount of toxin absorbed and contributed to the early myocardial involvement.

In the treatment of suspicious cases of severe pharyngitis with penicillin or streptomycin, one should not be lured into a false sense of security by the reported sensitivity of the Klebs-Löffler bacilli to these antibiotics. An early correct diagnosis in such cases with prompt administration of antitoxin is essential.

SUMMARY

1. Sensitivity of Corynebacterium diphtheriae in vitro and in vivo to penicillin and in vitro to streptomycin has been reported in the literature.

2. In a fatal case of diphtheria the organism was resistant to a daily dose of 364,000 Oxford units of penicillin received from the onset of illness. During the last three and a half days of illness, when the patient was near death, a daily dose of 2,400,000 units (2.4 Gm.) of streptomycin was given. Bacteriologic resistance was evident, as manifested by throat cultures which were repeatedly positive for C. diphtheriae during this time.

7. Neubauer, C.: Heart-Block in Diphtheria, Brit. J. Child. Dis. **40**: 93-103, 1943. White, P. D.: Heart Disease, ed. 3, New York, The Macmillan Company, 1944, p. 393.

8. Clinical-Pathological Conference: Diphtheria; Toxic Myocarditis, Willard Parker Hospital (New York), Arch. Pediat. **63**: 186-193, 1946.

9. Detailed analysis of the serial electrocardiographic studies in this case will be published in *Archives of Internal Medicine*.

3. Concomitantly, the patient was treated with 240,000 units of diphtheria antitoxin, the administration of which began four days after the onset of the illness.

4. Clinical characteristics of hypertoxic tonsillopharyngeal diphtheria were exemplified by this case, in which myocardial damage was manifest four days after onset of illness.

5. In suspicious cases of severe pharyngitis treated with penicillin or streptomycin, one should not be lured into a false sense of security by the reported sensitivity of C. diphtheriae to these antibiotics.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report: HOWARD A. CARTER, *Secretary.*

ZENITH HEARING AID, MODEL 75, ACCEPTABLE

Manufacturer: Zenith Radio Corporation, 6001 West Dickens Avenue, Chicago 39.

The Zenith Hearing Aid, Model 75, is a plastic-cased, self contained hearing aid, with the battery compartment at the back of the case closed by a removable cover. One Zenith receiver supplied with the instrument is connected by plastic plug-in cord to the top rear of the case.

Zenith Model 75 Hearing Aid

Two wheel-type controls are located one at each upper corner of the case. The combination on-off switch and tone selector has a zero position for off and four numbered tone settings. The continuously variable volume control is numbered from one to eight for preselection of volume.

Wearing clips are placed one on each side of the upper half of the instrument beside the microphone opening.

Dimensions and Weight.—Dimensions 14 by 2.5 by 6.6 cm. Weight 239 Gm. (8.5 oz.).

Batteries	Measured Voltage	Measured Current
A, 1½ volts	1.4 volts	60.00 milliamperes
B, 30 volts (Quiet)	28.0 volts	0.52 milliampere
(Squealing)		0.60 milliampere

Acoustical Gain.—Measurements were made of the gain in decibels in the sound pressure level set up in the investigator's regular coupler over that pressure level at the microphone placed in the face of a 16 by 8 inch (40.6 by 15.2 cm.) baffle. The input level at each frequency was 0.02 dyne per square centimeter.

The following figures, in decibels, are typical of the results obtained when the volume control was turned full-on at various frequencies and tone settings:

Frequency	256	512	1,024	1,200	2,250	3,100	4,096	Cycles
Tone setting 1	47	53	62	65	58	44	35	db.
Tone setting 2	46	51	59	59	47	37	24	db.

Approximate values of maximum sound pressure levels, at four frequencies, in the regular coupler with volume fixed for full gain and tone control set at 1 were as follows:

Frequency	Input Level	Maximum Output Level
600 cycles	65 decibels	109 decibels
1,024 cycles	70 decibels	117 decibels
1,200 cycles	70 decibels	114 decibels
2,048 cycles	70 decibels	113 decibels

Intelligibility and articulation scores with a hard of hearing subject were 90 per cent or better. Whispered words were heard at a distance of 5 feet (152 cm.).

Zenith Radio Corporation plans to market this hearing aid by mail only. It was noted that the A battery used in this hearing aid has special terminals. The B battery is similar to those used in other makes of hearing aids.

The Council on Physical Medicine, on the recommendation of the consultants on audiometers and hearing aids, voted to include the Zenith Hearing Aid, Model 75, in its list of accepted devices.

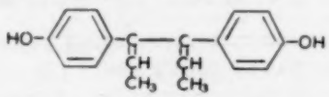
Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

DIENESTROL. — 3,4-bis(*p*-hydroxyphenyl)-2,4-hexadiene. —$C_{18}H_{18}O_2$.—M. W. 266.32. The structural formula of dienestrol may be represented as follows:



Actions and Uses.—Dienestrol is used orally for the same conditions for which estrogenic substances are employed, and its contraindications are similar to those of other estrogens.

Dosage.—In the treatment of menopausal symptoms, orally in daily doses of 0.1 to 0.5 mg. for mild to moderately severe symptoms. In artificially induced climacteric a daily dosage of 0.5 to 1.5 mg. may be necessary.

For suppression of lactation a dose of 0.5 mg. three times a day for the first three days and 0.5 mg. daily thereafter for one week is the dosage usually employed.

Tests and Standards.—

Dienestrol occurs as colorless or white needle-like crystals or as a white crystalline powder. It is readily soluble in ether, ethanol, methanol, acetone, propylene glycol and in dilute aqueous sodium hydroxide solution; it is soluble in chloroform and practically insoluble in water and in dilute mineral acids. It melts at 229 to 230 C.

Dissolve 10 mg. of dienestrol in 0.5 cc. of alcohol that is warm enough to completely dissolve the compound; cool and add 1 cc. of concentrated hydrochloric acid and approximately 50 mg. of vanillin: a blue color is produced immediately, which persists on dilution with water but disappears on the addition of alkali *(differentiation from hexestrol and diethylstilbestrol, which produce no color).*

A solution of 0.1 Gm. of dienestrol in 10 cc. of warm normal sodium hydroxide is clear; on dilution with 20 cc. of distilled water and addition of 5 drops of 10 per cent sodium sulfide solution, the mixture does not darken more than a control solution containing 0.02 mg. of added lead.

When dried to constant weight at 100 C., an accurately weighed sample of dienestrol loses not more than 0.5 per cent in weight. It yields not more than 0.05 per cent of residue on ignition (U. S. P. XIII, p. 685).

Transfer to a suitable flask about 0.5 Gm. of previously dried dienestrol, accurately weighed, and add 2 cc. of acetic anhydride and 4 cc. of dry pyridine. Boil the mixture under a reflux condenser for fifteen minutes; cool, add 50 to 60 cc. of distilled water and shake the flask and contents thoroughly. Stopper the flask and place it in the refrigerator over night. Collect the precipitate on a suitable tared filter and wash it with four 15 cc. portions of distilled water. Dry the precipitate at 75 to 80 C. for five hours, cool and weigh. The weight of the dry dienestrol diacetate obtained, when multiplied by 0.760, corresponds to a dienestrol content of not less than 98 per cent and not more than 101 per cent. The dienestrol diacetate obtained melts at 119 to 120 C.

WHITE LABORATORIES, INC., NEWARK, N. J.

Tablets Dienestrol: 0.1 mg. and 0.5 mg.

MENADIONE (See New and Nonofficial Remedies, 1947, p. 533).

The following dosage form has been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Tablets Kayquinone: 1 mg.

Capsules Kayquinone: 1 mg.

U. S. trademark 382,006.

EPHEDRINE SULFATE (See New and Nonofficial Remedies, 1947, p. 214).

The following dosage form has been accepted:

THE NATIONAL DRUG COMPANY, PHILADELPHIA

Capsules Ephedrine Sulfate: 25 mg. and 50 mg.

PENICILLIN TROCHES (See THE JOURNAL, March 22, 1947, p. 851).

The following dosage form has been accepted:

COMMERCIAL SOLVENTS CORP., NEW YORK

Troches Crystalline Penicillin G Potassium: 5,000 units.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - Chicago 10, Ill.

Cable Address - - - - "Medic, Chicago"

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SATURDAY, NOVEMBER 22, 1947

MORE ABOUT MEDICINE IN BRAZIL

The editorial, "Medicine in Brazil," published recently in The Journal (August 16, p. 1427), aroused much interest in Brazil, reflected by numerous comments in newspapers and medical periodicals and by discussions in medical societies. The Brazilians are rightly proud of the development of many of their medical institutions. The Oswaldo Cruz Institute near Rio de Janeiro, developed under Oswaldo Cruz and continued under Carlos Chagas, and the Butantan Institute at São Paulo have become widely known throughout the world as the result of their contributions to medical science. Among the hospitals are some developed, equipped and administered with high standards and excellent service to the patients. The first hospital in Brazil seems to have been established in 1543. Brazil was one of the first nations in the Western Hemisphere to establish a medical laboratory; Brazil and Argentina were among world pioneers in founding leagues against tuberculosis.

Progress in the advancement of medical education and in the provision of medical care has not kept pace, in the nations south of the Rio Grande, with the developments in the northern half of our hemisphere. São Paulo has two medical schools, one of which is excellent and the other in process of construction. Nevertheless more than half of the two hundred and fifty towns and cities of the state of São Paulo are without any hospital resources whatever. Mr. Charles Morrow Wilson in his excellent survey of medicine in Latin America, "Ambassadors in White," [1] emphasizes these deficiencies; he points out that the lack of medical facilities among our Latin American neighbors is largely the result of the absence of economic integration in the Western Hemisphere. If they are to create health standards comparable to those of the United States, they must have the interest, the support and the good will of their North American neighbors. Thus Mr. Wilson says, "If with our natural interest in the Latin countries—an interest as vital and compelling as a man's interest in his own leg—we had been one-fiftieth as active in their midst as have some of our present enemies, the health problems south of Texas would be much less serious than they are today."

A recent estimate indicates that Brazil has a little more than 41,000,000 inhabitants with some 13,700 physicians, or approximately 1 physician to a little over 3,000 persons. In the United States there is grossly 1 physician to about 800 persons. Moreover, discussion must concern not only the number of physicians in proportion to the population but the quality of their education; their distribution from the point of view of their availability to those who need them, and the extent to which they assume leadership in advancing the national health and welfare.

Of the medical schools in Brazil some are quite certainly capable of supplying a medical education of a quality approximating that now available in the medical schools of the United States. Many, however, lack adequate facilities for dissection, for microscopic studies and for teaching the fundamentals of physiology and pathology. The standards of admission vary greatly, and the controls over admission are not adequate in the sense of the minimum standards for admission that prevail in the United States. When tuberculosis and infant mortality are still among the leaders in the causes of death, when such conditions as typhoid and typhus, hookworm and malaria still prevail in such measure as to incapacitate great numbers of the population, the opportunity for economic progress is limited. The need for leadership in medicine and in public health sufficient to inspire the people of Brazil to support their physicians, their public health officials and their medical institutions in greater measure is obvious. The greatest help that the United States can give to the countries of Latin America is help that will overcome the unnecessary disability and death. A sick people can never become productive. Until they become productive, they will be economically unable to advance themselves.

1. Wilson, C. M.: Ambassadors in White, the story of American Tropical Medicine, New York, Henry Holt & Company, Inc., 1942.

NITROGEN TRICHLORIDE TREATED ("AGENIZED") FLOUR

For about twenty-five years mills have been exposing flour to nitrogen trichloride, a method recognized officially as safe for aging flour artificially. Such exposure not only improves the baking quality of flour quickly and effectively but also produces a larger, softer loaf of bread with a silkier and somewhat whiter crumb. For years the method has been preferred by industry because of its supposedly harmless nature. Moreover, the effect of the gas permits early utilization of flour in contrast with the long time necessary to mature the flour in storage warehouses. Now scientific investigation car-

ried out in England and in the United States have cast suspicion on this process. While the evidence available, supplemented by two papers published in this issue of THE JOURNAL (p. 757 and p. 760) need not produce alarm in the minds of people generally, it is sufficient to cause the Food and Nutrition Board of the National Research Council, as reported also in this issue (p. 769), to recommend continued investigation of the toxicity of the nitrogen trichloride process, the development of alternative processes and a reduction in the use of the nitrogen trichloride technic to the absolute minimum.

In 1937 Melnick and Cowgill [1] published the results of an investigation on the toxic effects on dogs of diets high in gliadin. Next Arnold and Elvehjem [2] reported in 1939 that such diets might produce in dogs a condition known as "running fits" and questioned whether this was a deficiency disease. The condition called "canine hysteria" has been recognized for some time and was believed by some to be an infection. Interest lagged thereafter, perhaps due to the war. Then in 1946 Mellanby [3] in England reported the production of "canine hysteria" by feeding dogs flour treated with nitrogen trichloride and proved that the toxic element was developed in this process. Since the publication of the report by Mellanby, the U. S Public Health Service, the Food and Nutrition Board of the National Research Council and the Council on Foods and Nutrition of the American Medical Association have been participating actively in a consideration of this problem. These groups are also cooperating with the Food and Drug Administration in intensive research, as revealed by the experimental work reported in this issue of THE JOURNAL. As will be seen from these results, evidence is not yet available to demonstrate that flour treated with nitrogen trichloride has a toxic effect on man to the extent that it affects animals and particularly the dog.

Research must continue until the true nature of the toxic effect of flour treated with this agent is apparent. The investigations already under way indicate that much more complete information will be available in the near future, as mentioned by the Food and Nutrition Board in its report to the Commissioner of Foods and Drugs.

Hasty and intemperate action might provoke a food crisis at a time when such a situation would be far more serious than any effects related to the use of the flour concerned. Fortunately, Wallace & Tiernan Products, Inc., the company which is the principal supplier of "agene," a commercial name of nitrogen trichloride, and the leading millers and bakers have indicated their willingness to comply voluntarily with any measures recommended by responsible groups of scientists and public health officials. Because of the indications from the evidence thus far available the members of the medical profession should be immediately interested and keep informed as to the progress of further research.

1. Melnick, D., and Cowgill, G. R.: The Toxicity of High-Gliadin Diets: Studies on the Dog and on the Rat, J. Nutrition **14**: 401 (Oct.) 1937.
2. Arnold, A., and Elvehjem, C. A.: Is Running Fits a Deficiency Disease? J. Am. Vet. M. A. **95**: 303 (Sept.) 1939.
3. Mellanby, E.: Diet and Canine Hysteria: Experimental Production by Treated Flour, Brit. M. J. **2**: 885 (Dec.) 1946.

FORMATION OF AMMONIA

Much of the metabolic acid in the urine under ordinary circumstances is neutralized by ammonia. From 300 to 500 cc. of tenth-normal acid is excreted in the course of twenty-four hours combined in this way. A quarter of a century ago Nash and Benedict [1] demonstrated that the kidney is the site of formation of the ammonia present in fresh urine. Although it has not been demonstrated in the mammal, it seems likely from experiments in amphibians [2] that the distal portion of the renal tubule secretes the ammonia, which there is substituted for the fixed base in combination with the metabolic acid being excreted.

The generally inverse relationship between the urea nitrogen and ammonia nitrogen in the urine under various metabolic alterations led to the view that urea was the material from which the urinary ammonia arose. However, urease is not found in the kidney; more recent studies [3] with labeled nitrogen have refuted this view. About two thirds of the ammonia appearing in the urine in experimental acidosis arises from glutamine in the blood through the activity of the enzyme glutaminase in the kidney.[4] The same investigation indicated that the remaining ammonia was formed from the deamination of plasma amino acids in the course of the action of renal amino acid oxidases. Further light has recently been thrown on this problem by Lotspeich and Pitts,[5] who have studied the rate of ammonia formation in the kidney in acidosis and the concomitant rate of tubular reabsorption of certain representative amino acids. An increase in urinary ammonia secretion followed administration of the amino acids glycine, *dl*-alanine, *l*-leucine and *dl*-aspartic acid, and also of a casein hydrolysate, whereas *l*-arginine, *l*-lysine, and *l*-glutamic acid proved without effect in this respect. Furthermore, the Syracuse investigators [5] showed that this activity in increasing ammonia production in the kidney is parallel both to the susceptibility to in vitro oxidative deamination and to the reabsorption of these amino acids in the renal tubules.

These observations provide added support for the current view regarding the origin of urinary ammonia. The recognition of the practical importance of the control of acid-base balance is an accepted part of modern medical practice. The elucidation of the mechanism of ammonia formation is, therefore, real progress.

1. Nash, T. P., Jr., and Benedict, S. R.: J. Biol. Chem. **48**: 463, 1921.
2. Walker, A. M.: Am. J. Physiol. **131**: 187, 1940.
3. Schoenheimer, R.: The Dynamic State of Body Constituents, ed. 2, Cambridge, Mass., Harvard University Press, 1946.
4. Van Slyke, D. D.; Phillips, R. A.; Hamilton, P. B.; Archibald, R. M.; Futcher, P. H., and Hiller, A.: J. Biol. Chem. **150**: 481, 1943.
5. Lotspeich, W. D., and Pitts, R. F.: J. Biol. Chem. **168**: 611, 1947.

Current Comment

BLUE CROSS AND MEDICAL SERVICE PLANS

Just available is complete report of a study of Blue Cross hospital service plans and medical service plans [1] operated in conjunction with them, authorized by the Surgeon General of the United States Public Health Service. The study, which began in 1943, covers all aspects of the Blue Cross movement—history, growth, premiums and benefits, contracts with hospitals, legal status, enrolment policies and problems, financial status, utilization experience and relations with hospitals, with the members of the medical profession and with the general public. The purpose of this study is to appraise the advantages and limitations of Blue Cross plans so that the United States Public Health Service may "have an informed opinion of the present and potential usefulness of existing methods of distributing medical and hospital care." In line with this desire for an informed opinion the Public Health Service is presently conducting a study of group practice in the United States.

The field work for the survey included actual visits to thirty-nine hospital service plans and seventeen medical plans operated by or in connection with Blue Cross hospital plans. The statistical material is presented in detail through maps, charts and graphs, and it supplements detailed discussions of the various aspects mentioned. Reed states that approximately 39,700,000 persons were enrolled as of Jan. 1, 1947 in organizations providing hospital service on a prepayment basis or had insurance protection against the cost of this service. Of this 39,000,000, 24,000,000 were enrolled in Blue Cross, 12,500,000 were enrolled through insurance companies and 1,500,000 were included in industrial medical plans. The remainder were scattered through private group clinics, consumer-sponsored plans and others. Blue Cross, the report states, is "big business" with over $80,000,000 in total assets, almost $32,000,000 in liabilities and more than $48,000,000 in reserves at the end of 1945. The total income of the eighty hospital plans in 1945 was $123,333,241, of which 81.6 per cent was paid to hospitals, 12.2 per cent was used for administration and 6.2 per cent went into reserves. The report provides a wealth of data to those interested in administrative aspects of both the medical and hospital plans. In general, the approach has been objective; the strength and weaknesses of both Blue Cross and medical plan operations are well presented.

The yardstick for evaluation that seems to have been used throughout the survey and the report is complete protection against all the illnesses of all the people. With this as a measure the author finds that both the Blue Cross hospital plans and the medical plans operated in conjunction with them fall short of the desired goal.

1. Reed, L. S.: Blue Cross and Medical Service Plans, Federal Security Agency, United States Public Health Service, 1947.

A TELEVISION HANDBOOK

Recent publication by the Bureau of Health Education of a booklet [1] on the subject of television in health education emphasizes an important new medium through which physicians and public health agencies will soon be able to have added contacts with the general public. The 22 page brochure discusses problems presented in use of television, satisfactory technics and the tremendous potential advantages contained in this form of "living motion pictures" in the home and in public meeting places. These observations are the result of more than a year's experience in presenting health programs over television station WBKB in Chicago.

Twenty-eight such programs are summarized in the booklet. Although optimistic, the booklet recognizes that health education teachers may find this a difficult medium to utilize successfully, competing as it must with professional presentations by both radio and motion pictures. The instantaneous nature of the product, precluding the possibility of retakes or patching of the continuity, emphasizes this problem. The importance of technical assistance is recognized and the valuable contributions of the staff of station WBKB are acknowledged. Health education may well be entering a new era in which the once a year meeting for stirring up public interest will be replaced by once a week contacts with a tremendously increased portion of the population.

LOWER MATERNAL AND INFANT MORTALITY RATES

The decrease in maternal and infant mortality rates in the United States during the last ten years has been accompanied by an increase in the percentage of births attended by physicians and in the number of births that occurred in hospitals. A recent report by the U. S. Public Health Service shows that the infant mortality rate in 1935 was 55.7 per thousand live births and that midwives attended 10.7 per cent of the births. Ten years later the infant mortality rate was 38.3 and the percentage of births attended by midwives was down to 6.1. The maternal mortality was 5.8 per thousand live births in 1935 and 2.1 in 1945. The percentage of live births attended by physicians in a hospital in 1935 was 36.9; ten years later it was 78.8. The percentage of births attended by physicians not in a hospital decreased during the same period from 50.6 to 14.7. These figures are significant; they show clearly the results of two of the more important factors in the preservation of life among mothers and infants.

1. Television Handbook, Chicago, American Medical Association, 1947. This may be secured from the Bureau of Health Education for 50 cents.

ORGANIZATION SECTION

Official Notes

MEETING OF THE BOARD OF TRUSTEES

Chicago, Nov. 7 and 8, 1947

A CONDENSED REPORT

Members of the Board devoted an entire day to consideration of budgets submitted by the various councils bureaus and departments in the headquarters of the Association; and appropriations were made for the conduct of the work of these bodies, for regularly appointed committees and for established conferences.

Appropriations

RESEARCH ON ELECTROCARDIOGRAMS

A special appropriation was made for a grant in aid of research on electrocardiograms, through the Council on Physical Medicine.

RESURVEY OF MEDICAL EDUCATION

Appropriation was made also for a resurvey of medical education.

Appointment of Representatives

The following appointment of representatives of the Association on miscellaneous committees and editorial boards or to attend meetings of other organizations were made by the Board:

Drs. Charles C. Wilson, New Haven, Conn.; Herman Jahr, Omaha, and Frank Walls, Washington, D. C., as alternates for the representatives on the Joint Committee on Health Problems in Education, to assure a quorum at meetings.

Drs. Oscar Hunter and E. R. Whitmore, Washington, D. C., to Fourth International Congresses on Tropical Medicine and Malaria.

Dr. Thomas S. Cullen, Baltimore, at inauguration of Francis Xavier Talbot, S.J., as president of Loyola College, Baltimore, Dec. 3, 1947.

Dr. E. L. Bortz, Philadelphia, on the supervisory board of the American Year Book Corporation.

Dr. Henry H. Kessler, Newark, N. J., on the Committee on Affiliate Organizations of the National Rehabilitation Association.

Drs. A. C. Ivy and W. E. Chamberlain, to fill vacancies on the Council on Physical Medicine caused by the death of Dr. Eben J. Carey and the resignation of Dr. A. U. Desjardins.

Dr. James R. Miller, to act as representative of the Board of Trustees on the Committee on Rural Medical Service, replacing Dr. Charles W. Roberts (deceased).

Dr. L. H. Bauer was elected to the Executive Committee of the Board and Dr. E. J. McCormick, to the Committee on Scientific Research, in place of Dr. Roberts.

Dr. Carl B. Drake, St. Paul, to the Advisory Committee to the Cooperative Medical Advertising Bureau to succeed Dr. E. M. Shanklin, whose term expires this month.

Dr. Morris Fishbein, to serve on Committee on Nomenclature of the Cells and Diseases of the Blood and Blood Forming Organs.

Dr. Austin E. Smith, on the section of *The Scientific Monthly* called "Science on the March."

Dr. Dwight H. Murray was elected chairman of the Committee on Scientific Exhibit to succeed Dr. L. H. Bauer, who resigned his appointment.

Drs. Howard F. Root, Boston, and Max M. Peet, Ann Arbor, Mich., were elected to replace Drs. Eben J. Carey and George Blumer on the Committee on Scientific Exhibit.

Dr. Robert Kehoe, Cincinnati, was elected to the Council on Industrial Health, to succeed Dr. Stanley J. Seeger, who resigned. Dr. E. J. McCormick was appointed to represent the Board of Trustees on the Council.

Successor to Dr. John H. Musser

Dr. George E. Burch of New Orleans was elected to succeed Dr. John H. Musser (deceased) on the Editorial Board of the *Archives of Internal Medicine*.

Dr. James A. Waring of Denver was appointed to serve on the Council on Medical Education and Hospitals until the next meeting of the House of Delegates, in place of Dr. Musser.

Committee Appointments

The following committees were appointed by the Board, and all members have accepted membership on the committees:

Committee on Rebates:
- Dr. Frank R. Ober, Boston, chairman.
- Dr. Edwin Vincent Askey, Los Angeles.
- Dr. Lawrence T. Post, St. Louis.
- Dr. E. V. L. Brown, Chicago.
- Dr. Paul C. Swenson, Philadelphia.

Committee on General Practice of Medicine:
- Dr. Karl Meyer, Chicago.
- Dr. Paul A. Davis, Akron, Ohio.
- Dr. W. B. Harm, Detroit.
- Dr. Reginald Fitz, Boston.
- Dr. Walter B. Martin, Norfolk, Va.
- Dr. Stanley R. Truman, Oakland, Calif.
- Dr. Paul B. Magnuson, Chicago.

Council on National Emergency Medical Service:
- Dr. James Sargent, Milwaukee, chairman.
- Dr. Richard L. Meiling, Columbus, Ohio, secretary.
- Dr. Harold Diehl, Minneapolis.
- Dr. Harold C. Lueth, Omaha.
- Dr. Perrin Long, Baltimore.
- Dr. Stafford Warren, Los Angeles.
- Dr. W. McKendree Craig, Rochester, Minn.
- Dr. E. L. Bortz, Philadelphia (ex officio).
- Dr. George F. Lull, Chicago (ex officio).

Woman's Auxiliary

A committee of three, composed of Drs. F. F. Borzell, chairman, R. L. Sensenich and E. E. Irons, were appointed to aid the Woman's Auxiliary in the revision of its constitution and by-laws.

Dr. W. W. Bauer was named special consultant in health education to the Woman's Auxiliary.

The Editor was authorized to continue negotiations with a view to establishing a monthly magazine for the Woman's Auxiliary to take the place of the *Bulletin*, which is now issued quarterly.

National Conference on Family Life

Drs. James R. Miller and Wingate M. Johnson were selected to represent the American Medical Association at the National Conference on Family Life to be held at the White House, May 6 to 8, 1948.

World Medical Association

A report was received from the representatives appointed by the Board of Trustees to the meeting of the World Medical Association in September.

Liaison with Other Organizations

Plans were made for a meeting in February between representatives of the American College of Surgeons and a committee of the Board of Trustees, composed of its Executive Committee (Drs. W. F. Braasch, E. E. Irons and L. H. Bauer), Dr. R. L. Sensenich (President-Elect), Dr. Donald G. Anderson (representing the Council on Medical Education and Hospitals) and Dr. George F. Lull (Secretary and General Manager).

Dr. Dean F. Smiley of the Bureau of Health Education was appointed to serve on the Governing Council of the American School Health Association.

On instructions of the Board, the chairman will appoint a small liaison committee to confer from time to time with a similar committee of the National Safety Council. Arrangements were also made to cooperate with the National Committee for Traffic Safety.

In response to a request from the American Nurses' Association, the Board of Trustees requested its Committee on Nursing Problems to meet with a similar committee to be appointed by the American Nurses' Association.

Dr. Donald G. Anderson was appointed to represent the American Medical Association on the Committee on Accrediting of the National League of Nursing Education.

Discharge of Committees

Action was taken by the Board to discharge committees which have not been active for a long period of time but which have not previously been officially discontinued.

The Board also decided to discontinue the Committee to Study Air Conditioning, and arrangements were made to have the work of the committee on aerosols completed through a grant from the Committee on Scientific Research.

The Committee on American Health Resorts likewise will be discharged on December 31. The Bureau of Information will be transferred to the Council on Medical Service.

Interim Session of Association

The Board received a report that Clinton P. Anderson, Secretary of Agriculture, will address the meeting on Wednesday, January 7, at the Interim Session of the Association in Cleveland, on "World Nutrition as a Medical Problem." The General Practitioners' Medal will be presented.

Grass Roots Conference

The Board authorized the holding of a Grass Roots Conference on Tuesday evening, January 6, of the interim session in Cleveland.

Public Relations

Arrangements were made for the employment of a public relations consultant and an executive in the Public Relations Department of the Association.

Building Program

The Board will request the architects to draw up tentative plans for five additional stories on the three story structure at the east end of the headquarters building, to provide much needed space for the increased activities of the Association.

Bulletin of American Medical Association

The Board authorized the Secretary and General Manager and the Editor of THE JOURNAL to reestablish the organizational bulletin—the *Bulletin of the American Medical Association.*

Quarterly Cumulative Index Medicus

It was voted to increase the subscription price of the "Quarterly Cumulative Index Medicus" to $15 a year.

Affiliation of Medical Students

At the direction of the Board, a study is at present being conducted of ways and means to promote closer affiliation of medical students with the American Medical Association.

Cooperation with Japanese Publisher

Permission was given to a Japanese publisher, through the United Press, for translation and reprint rights to THE JOURNAL, on a six months' trial basis; at the end of that period negotiations may again be considered.

Museum of Science and Industry

Authorization was given to the Director of Exhibits, Dr. Thomas Hull, to act as executive director of medical exhibits at the Museum of Science and Industry of Chicago.

Assistance for School of Tropical Medicine and Research Laboratory on Altitude

The Board approved an endeavor on the part of the Editor to secure assistance for the School of Tropical Medicine and for the Research Laboratory on Altitude in Lima, Peru.

Resolutions on Hospital Competition with Private Practice

A committee, composed of Drs. Louis H. Bauer (chairman), Roy W. Fouts and James R. Miller, was appoined by the Board for the purpose of clarifying the resolutions on hospital competition with private practice.

Miscellaneous

Other matters were considered, many of which will be reported on at a later time.

SCHOOL HEALTH SERVICE RECOMMENDATIONS

The Conference on the Cooperation of the Physicians in the School Health and Physical Education Program held in Highland Park, Ill., Oct. 16-18, 1947 resulted in the following recommendations of interest to all physicians concerned with school health work:

1. In order that a school health program may be kept continuously in proper relationship with public health services, welfare services, medical and dental services and all the health resources of the community it is essential that some form of community health council, bringing together representatives of all local groups with definite health responsibilities, be formed.

2. Wherever there is a school, the local community should budget for a school health program in the department of education, in the department of health or in both. In that budget there should be adequate provision for the salary of a well qualified medical adviser serving the school full time or part time as the need requires.

3. Every school system should have an advisory school health council, every school a health committee, every local medical society a school health committee. In some instances such committees or council can best be developed within the framework of an already existing plan of organization.

4. The physician's time in the school can be best utilized (*a*) if he is employed as school medical adviser rather than school medical inspector; (*b*) if the routine medical examinations, whether done by the family physician or the school physician, are spaced at three year intervals during the school life of the child; (*c*) if pupils in need of special examination and advice are carefully selected by the teacher and made the subject of a physician-teacher conference, and (*d*) if considerable portions of the routine examinations are delegated to teachers and nurses, reserving for the physician only those portions which he alone is equipped to do.

5. Since immunization is necessary for protection particularly in the infancy and preschool period, the schools should definitely discourage the practice of postponing inoculation to the period of school entrance.

6. It is essential that teachers be aware of the physical handicaps of their pupils. Results of medical examinations of her pupils should therefore be interpreted to the teacher in the physician-teacher conference, making certain that the teacher thoroughly appreciates the importance of safeguarding all matters of a confidential nature.

7. Instruction as to the need and value of voluntary planning for medical, dental and hospital expenses through prepaid programs should be stressed in the high school curriculum.

8. Cumulative health records should be a part of the child's total school record throughout his school life.

9. In determining the content of the physical education program the physical education teacher, the physician and the pupils should all play an appropriate part.

10. Physicians and physical education teachers in the various communities should arrange joint meetings for the discussion of such problems as the individual-adapted physical education program and the classification of pupils for physical education activities.

11. In those communities where graded types of physical education activities adapted to the varying needs of pupils are available in the school, permanent and blanket excuses from physical education should rarely if ever be given.

12. All school health service personnel should have experience in field work as a part of their preservice training.

13. Medical schools should give additional training to medical students in regard to (*a*) the relation of the physician to the school and the community; (*b*) the physiology of exercise

and the function of physical education in the life of the child; (*c*) the pediatric examination as the model for school examinations, and (*d*) how the school physician may function as a medical adviser rather than a mere medical inspector.

14. Schools of public health should give increased emphasis in their training of health educators, physicians and nurses to (*a*) school health, (*b*) the basic philosophy of general education, and (*c*) school organization and administration.

15. In every community there should be planning and inservice training conferences, institutes and workshops involving teachers, physicians, nurses, dentists, dental hygienists and others interested in the community health program to work out problems related to that community.

16. There is urgent need for research into many phases of school health service and particular need for evaluation of procedures not only in terms of defects found and remedied but also in terms of educational outcomes in the child, increased understanding of the child by the teacher and increased provision of special programs of education for the exceptional child.

17. A joint committee composed of representatives named by the American Medical Association and the American Association for Health, Physical Education and Recreation (perhaps as a subcommittee of the Joint Committee on Health Problems in Education of the National Education Association and American Medical Association) should be appointed to draw up recommendations regarding (*a*) the administration of the individual-adapted program of physical education, (*b*) the medical examination and guidance of athletes.

18. Authoritative committees already functioning should be asked or new committees should be formed to study (*a*) posture, (*b*) the effects of vigorous physical activities on the cardiovascular system, (*c*) psychologic attitudes of participants toward physical education activities and (*d*) energy expenditure in the various types of physical activities.

19. State medical societies and associations should be urged to plan jointly with their health department, education department and education association for the development of conferences at the state level which are comparable to this conference at the national level. It is suggested that the needs of rural schools should receive special consideration.

NOTE: The full report of the Conference is in the process of printing and will be available shortly at a nominal charge from the Order Department of the Association.

Washington Letter

(From a Special Correspondent)

Nov. 20, 1947.

Medical Supplies Urgently Needed Overseas

Secretary of Commerce Harriman revealed to the Senate Foreign Relations Committee that an emergency $597,000,000 relief fund sought to assist France, Italy and Austria includes the purchase of sorely needed medical supplies. Secretary of State Marshall reported to the House Foreign Affairs Committee that this sum must be appropriated before December 1 to do any good, and he said that full assistance under the European Recovery Program must be enacted before the early part of March.

Medical Officers Eligible For Release In December

Army and Navy announced here that 2,200 medical officers trained at government expense during wartime will be eligible for release December 1. This is several months ahead of schedule. If enough of the physicians do not remain voluntarily, the Army and Navy have the right to retain a sufficient number to keep medical services up to minimum strength. A survey shows that this may not be necessary. The order affects some 900 Navy V-12 doctors who entered service prior to May 1, 1946 and 1,300 nonvolunteer general duty Army medical officers who also entered prior to that date. They had been held in service because of the shortage of service physicians. These young doctors have been urged to apply for regular commissions or an additional year's active duty on a volunteer basis. Either way they would become entitled to the $100 a month extra pay voted for doctors in service by the last Congress.

Physicians Sign Up for Hospital Plan

The District of Columbia Medical Society announced that seven hundred and thirty-five physicians, more than 60 per cent of its members, have enrolled in the new Group Hospitalization Insurance plan which covers doctors' fees for surgery and maternity cases. The service, in effect early next year, covers the costs incurred by hospital patients for surgery, obstetric services, x-ray, anesthesia and laboratory work. Charges for the insurance are 80 cents a month for an individual, $1.75 for husband and wife and $2 for family. The insurance is now open only to government, business and other employees in groups, but the society hopes soon to extend it to individuals. A plan for dental service has been presented to the insurance organization's 13,000 members.

Drs. Best and Joslin Appear on Diabetes Forum

Dr. Charles H. Best, director of the Banting-Best Research Institute, University of Toronto, Canada, and Dr. Elliott P. Joslin, emeritus clinical professor of medicine, Harvard University, and medical director, Baker Clinic for Diabetics at New England Deaconess Hospital, Boston, appeared on a diabetes forum here. They reported on the latest developments in the field to an audience of doctors, dentists, diabetic patients and their families.

Coming Medical Meetings

American Medical Association Interim Session, Cleveland, Jan. 5-8. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

Annual Congress on Industrial Health, Cleveland, Jan. 5-6. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Allergy, St. Louis, Hotel Jefferson, Dec. 15-17. Dr. Theodore L. Squier, 425 E. Wisconsin Ave., Milwaukee 2, Secretary.

American Academy of Dermatology and Syphilology, Chicago, Palmer House, Dec. 7-11. Dr. Earl D. Osborne, 471 Delaware Ave., Buffalo, N. Y., Secretary.

American Academy of Pediatrics, Dallas, Texas, Dec. 8-11. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.

American Association of Railway Surgeons, Chicago, Nov. 23-25. Dr. Raymond B. Kepner, 547 West Jackson Boulevard, Chicago 6, Secretary.

American Society of Anesthesiologists, New York, Hotel New Yorker, Dec. 4-5. Dr. Curtiss B. Hickcox, 745 Fifth Ave., Room 1503, New York 22, Secretary.

American Society of Tropical Medicine, Atlanta, Ga., Dec. 2-4. Dr. Norman H. Topping, National Institute of Health, Bethesda 14, Md., Secretary.

Post Graduate Medical Assembly of South Texas, Houston, Texas, Coliseum, Dec. 1-3. Dr. E. Trowbridge Wolf, 229 Medical Arts Bldg., Houston, Texas, Secretary.

Puerto Rico, Medical Association of, San Juan, Dec. 10-14. Dr. Jeramfel Cordero, Box 3866, Santurce, Secretary.

Radiological Society of North America, Boston, Nov. 30-Dec. 5. Dr. Donald S. Childs, 607 Medical Arts Bldg., Syracuse 2, N. Y., Secretary.

Seaboard Medical Association of Virginia and North Carolina, Virginia Beach, Va., Dec. 2-5. Dr. Clarence Porter Jones, 3117 West Ave., Newport News, Va., Secretary.

Southeastern Allergy Association, Richmond, Va., Jefferson Hotel, Jan. 17-18. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia 49, S. C., Secretary.

Southern Medical Association, Baltimore, Nov. 24-27. Mr. C. P. Loranz, Empire Bldg., Birmingham 3, Ala., Secretary.

Southern Surgical Association, Hollywood, Fla., Dec. 9-11. Dr. Alfred Blalock, Johns Hopkins Hospital, Baltimore 5, Secretary.

Western Surgical Association, Colorado Springs, Broadmoor Hotel, Dec. 4-6. Dr. Warren H. Cole, 1853 West Polk St., Chicago 12, Secretary.

GOVERNMENT SERVICES

ARMY

MEETING OF MEDICAL CONSULTANTS

The Society of U. S. Medical Consultants of World War II, which met at Walter Reed General Hospital, November 5, was addressed by the Secretary of the Army. Secretary Royall stressed the need for coordination of the medical services of the armed forces. He believes that, by coordination, savings in both medical facilities and personnel can be effected.

The Secretary paid tribute to the American medical profession and to American military medicine, terming them the best in the world. He pointed out that in World War I battle deaths were 16.4 per thousand troop strength, nonbattle deaths 17.9, deaths from disease 16.5 and deaths from wounds 4.4, while in World War II battle deaths were 9.7 per thousand troop strength, nonbattle deaths 2.9, deaths from disease 0.6 and deaths from wounds 1.1.

Mr. Royall praised the Secretary's Medical Advisory Committee, now headed by Dr. Edward Churchill of Boston, and the work of the medical consultants during and since the war. He declared that the Army owed a great debt especially to the late Dr. Elliott Cutler, also of Boston, first president of the Consultants Society.

Among the problems now facing the Army, Mr. Royall stressed the lack of medical personnel. He said that the Army knows the military doctor wants residence training with a chance for research and specialization and that such training is the goal of the Army Medical Department.

The meeting was attended by more than one hundred members of the society from all sections of the country to discuss ways they can aid in advancing military medicine. The meeting was opened by Dr. Walter Bauer of Boston, president of the society. Remarks were made by the Surgeon General, Raymond W. Bliss; Col. Raymond E. Duke, who discussed the professional graduate training program; Col. William S. Stone, who described the research activities carried on by the medical corps, and Major Gen. W. S. Paul, director of personnel on the general staff, and Col. Paul I. Robinson, who discussed details of personnel procurement. A general discussion of the policies of the Army Medical Corps followed. At the dinner at the officers club, Major Gen. Manton S. Eddy, Office of the Chief of Staff, spoke on "Our Military Situation."

MEETING OF MEDICAL OFFICERS IN KOREA

Several Korean physicians in addition to about one hundred Army medical officers attended the regular meeting of the U. S. Medical Officers at Seoul, Korea, October 29. A paper on gunshot wounds of the abdomen and thorax was presented by Capt. James D. Weaver, chief, surgical service, 382d Station Hospital, where the meeting was held, and was discussed by Capt. Harry Noller, chief, x-ray service, and by Capt. William Nesset, chief, medical service. A paper on venereal disease control was presented by Capt. Joseph P. Harvey of the headquarters of the 24th Corps and was discussed by Capt. Clifford A. Pease Jr., of the Public Health and Welfare Office. A bus met the train from Pusan at the station in Seoul and transported visiting officers to the hospital, where breakfast was served. The visiting officers were transported to the station in the evening after a social gathering at the officers' club and a buffet dinner. The next regular meeting was scheduled for November 19 at the 377th Station Hospital, APO 235.

DIETITIANS AND PHYSICAL THERAPEUTISTS

The Department of the Army has established an initial call and recall for dietitians and physical therapeutists. Officers in these categories who served during World War II and now are on the inactive status may request extended active duty in the U. S. Army. Persons desiring to apply for extended active duty must be physically qualified and have no dependents under 14 years of age. Application blanks may be obtained from the Adjutant General, Washington, D. C., or from the Surgeon General's Office.

PERSONAL

Capt. J. D. Weaver, M. C., chief, surgical services, 382d Station Hospital, discussed a paper on "Gas Gangrene" at a meeting of U. S. Army medical officers in Korea, August 13. This officer's name was erroneously reported as Capt. J. D. Beaver in THE JOURNAL, October 4, page 292.

NAVY

SURVEY OF CHOLERA IN THE NEAR EAST

Rear Admiral M. D. Willcutts (MC), assistant chief, Bureau of Medicine and Surgery for Professional and Personnel Operations, and Capt. LeRoy D. Fothergill (MC), U.S.N.R., Walkersville, Md., left recently for an extended tour through Europe and the Near East to conduct a survey of the cholera situation and to evaluate the results of treatment following the Navy's contribution of 60,000 pounds of vaccine and drugs to the Egyptian government. These officers, specialists in epidemiology, will confer at Cairo, Egypt, with the Navy's Medical Research Institute No. 3, which is assisting the Egyptian government in fighting the epidemic.

VACANCIES IN GRADUATE TRAINING PROGRAM

Several residencies and fellowships in naval hospitals and civilian institutions are still available in the graduate medical training program of the medical department of the Navy in anesthesiology, ophthalmology, orthopedic surgery, urology, proctology, neurology, etc. Other positions of this nature will become available in a few months, including psychiatry, thoracic surgery, internal medicine, dermatology and neurologic surgery. Vacancies also exist in the next class in aviation medicine beginning Jan. 5, 1948. There are also special assignments available in the course in submarine medicine, which emphasizes applied physiology.

SURGEON GENERAL VISITS NAVAL INSTALLATIONS

Rear Admiral Clifford A. Swanson, Surgeon General of the Navy, on his way to and his return from Boston, where he attended the meeting of the Association of Military Surgeons of the United States November 13, visited the naval medical installations at Newport, R. I.; Chelsea, Mass., and Portsmouth, N. H.

SHORT COURSE ON ATOMIC ENERGY

Twenty-nine medical officers from the Medical School at the Naval Medical Center, Bethesda, Md., have been ordered to the research graduate school at the Army Medical Center, Washington, D. C., for a five day course in the medical aspects of atomic energy.

VETERANS ADMINISTRATION

ABOLISH RECEPTION SERVICE IN HOSPITALS

Reception services in Veterans Administration hospitals are being abolished to speed active medical treatment of patients, Dr. Paul R. Hawley, chief medical director, has announced. General medical and surgical patients now will be admitted directly into active treatment wards, where their case histories and routine examinations will be made. These functions formerly were conducted by the reception services pending assignment of patients to treatment wards. In tuberculosis hospitals new patients will enter diagnostic and classification units, where they will be put to bed immediately regardless of past diagnoses or apparent status of physical well-being. Active treatment as determined by physicians will begin without further delay.

In neuropsychiatric hospitals intensive treatment services are being established which comprise all facilities needed for treatment of acute neuropsychiatric disorders in all categories of behavior and diagnoses. Here therapeutic needs will be determined promptly and treatment programs started without delay. Patients who improve or show prospects of improvement will be retained in this service until trial visit, discharge or need for continued treatment becomes evident.

REDUCTION IN PAPER WORK

The Veterans Administration has reduced the number of forms it uses for processing veterans' benefits, the cutback amounting to a reduction from 19,841 to 9,698 forms. The forms reduction program will continue, it is said, until administrative forms are at the minimum, which is estimated to be between 3,500 and 4,000. After V-J Day the number of forms rapidly increased as new veterans' installations were opened, each installation creating its own forms to gather the information needed. General Bradley then ordered all unnecessary forms eliminated and standard forms for each benefit established. However, of the various services in branch offices the insurance service is the only operating unit which has completed the standardization of its forms. The medical forms in use were cut from 4,500 in February to 2,309 in October 1947. When the standardization programs have been completed in each branch area, the branch forms will be studied and combined into forms for general use throughout the Veterans Administration.

LABORATORY COURSE IN PARASITIC DISEASES

The U. S. Public Health Service, Communicable Disease Center, Laboratory Division, 291 Peachtree Street, Atlanta, Ga., announces three refresher courses in the laboratory diagnosis of parasitic diseases on the following dates: (1) Jan. 12 to Feb. 20, 1948; (2) July 12 to Aug. 20, 1948, and (3) Oct. 11 to Nov. 19, 1948. The courses are open to all employed laboratory personnel. Applications should be made as far in advance as possible. There is no tuition fee, but the individual must pay his travel and living expenses. Reservations for living accommodations should be made as early as possible. A list of hotels and rooming houses will be sent to applicants at the time of their acceptance to the course. Details may be had by writing to the aforementioned address.

TEN DOCTORS NEEDED IN MICHIGAN

The manager of the Veterans Administration office in Grand Rapids, Mich., has requested the county medical societies in that area to cooperate in obtaining the services of ten physicians, who will be selected to serve as members of rating boards to determine the degrees of disability incurred by veterans during military service. According to the *Grand Rapids Michigan Press* in addition to the salary these positions provide for twenty-six days' annual leave with pay. Applications should be forwarded at once to the Personnel Division, Veterans Administration, Guardian Building, Detroit.

PERSONAL

Dr. Peter A. Volpe of Worthington, Ohio, has been named acting medical director for the Veterans Administration in Ohio, Michigan and Kentucky to succeed Dr. Cyril H. Francis, who has been transferred to a similar position in Denver. Dr. Volpe formerly practiced in Columbus and served as a major in the medical corps during the recent war.

FOOD SUPPLY DEPOTS

The VA maintains six supply depots—Denver; Hines, Ill.; Wilmington, Calif.; Somerville, N. J.; Montgomery, Ala., and Perry Point, Md.—from which during August nearly 25,000,000 pounds of foodstuffs and other types of supplies were handled.

PUBLIC HEALTH SERVICE

SURVEY OF BCG VACCINATION

Jacob Yerushalmy, Ph.D., principal statistician of the Tuberculosis Control Division, will assist the chief of the Tuberculosis Division of State Serum Institute, Copenhagen, Denmark, in initiating investigations parallel to those of the U. S. Public Health Service. On completion of this assignment, Dr. Yerushalmy will observe tuberculosis control, particularly BCG vaccination, in France, Belgium, Holland, Norway, Sweden, the United Kingdom, Egypt, Palestine and American Military Zones of Austria and Germany. The Rockefeller Foundation is providing funds.

FIRST ALL-PURPOSE MEDICAL HYGIENE CLINIC

The first all-purpose demonstration mental hygiene clinic to be established under the National Mental Health Act was to begin operation around November 1 in Prince Georges County, Md. Under joint auspices of the Maryland State Health Department and U. S. Public Health Service, the clinic will furnish psychiatric service to children and adults and will serve as a center for community education in mental hygiene and a training center for professional personnel. Dr. Mabel Ross, Mental Hygiene Division, Public Health Service, will be the clinic's director.

FORMER MENTAL HEALTH COUNCIL MEMBERS

Dr. Frank F. Tallman, who recently resigned as commissioner of mental hygiene, Ohio State Department of Public Welfare, and Dr. George S. Stevenson, medical director, National Committee for Mental Hygiene, were appointed consultants in mental health to the Public Health Service on expiration of their terms on the National Advisory Mental Health Council. Council members cannot succeed themselves.

PERSONAL

Dr. J. W. Hough, who was on loan to the California Department of Public Health for nearly a year, has been transferred to Washington, D. C., for duty with the Industrial Hygiene Division of the U. S. Public Health Service.

Dr. A. L. Chapman has been assigned as assistant chief of the States Relations Divisions of the Public Health Service.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ALABAMA

Eye Hospital Dedicated.—The Thigpen-Cater Eye Hospital, commemorating Dr. Charles A. Thigpen and Dr. Job T. Cater, of Montgomery, and built through the generosity of Dr. Thigpen, was dedicated on November 2 at Birmingham (THE JOURNAL, August 2, p. 1186). The new eye hospital is a division of the Medical College of Alabama, Birmingham. Dr. Alston Callahan, professor of ophthalmology, is director of the new unit.

First Approved Hospital Grant-in-Aid.—The first application for a federal grant-in-aid for building a hospital under the nationwide five year hospital survey and construction program was signed November 5 in Washington, D. C. The application of the Chattahoochee Valley Hospital, Langdale, is for an eighty-two bed health center to provide medical, surgical and obstetrical services; high voltage roentgen therapy; laboratory services; an outpatient clinic, and public health facilities. The total cost is estimated at $1,663,287. The Federal Security Agency of the U. S. Public Health Service announced November 5 that twenty-five state plans for hospital construction have been completed. Fifty preliminary applications have already been submitted for tentative approval.

CALIFORNIA

Licenses Revoked.—The California Board of Medical Examiners on October 29 suspended for one year the license of Dr. Sidney Roy Garfield, Oakland, to practice medicine and surgery in California. He was placed on probation to the Board of Medical Examiners for five years for employing unlicensed practitioners of medicine and aiding and abetting an unlicensed person to practice while he was operating the Permanente Foundation Hospital in Oakland. The license of Dr. John A. Kelleher, San Francisco, to practice medicine and surgery in California was revoked on charges of violation of the Health and Safety Code of California.

COLORADO

Establish Cancer Department.—The University of Colorado Medical Center, Denver, has received a grant of $25,000 from the National Advisory Cancer Council of the U. S. Public Health Service to establish a department for the teaching of early cancer diagnosis and treatment to medical students, interns, residents and practicing physicians. Dr. John M. Foster Jr., professor of surgery at the University of Colorado School of Medicine, Denver, will head this activity.

DELAWARE

Semiannual Cancer Tests for Women.—Under a plan approved by the Delaware Division of the American Cancer Society, the state's 4,700 women over 40 years of age will be given the opportunity to receive semiannual cancer tests. Two hundred of the state's three hundred and twenty physicians will be used in giving the tests, according to Dr. John F. Hynes, president of the society. Women who can afford it will be expected to pay $3 for each examination. The society expects to raise sufficient funds to assure tests for those who cannot pay.

ILLINOIS

New Hospital for Mercer County.—A fifty bed public hospital is to be constructed by Mercer County in Aledo, now without hospital facilities, at an approximate cost of $695,000. Applications for federal and state aid have been approved by the state director of public health. The hospital is to be a three story brick and concrete building.

Dr. Vail Speaks on Corneal Transplantation.—At the annual luncheon meeting of the Illinois Society for the Prevention of Blindness at the Hotel LaSalle, Chicago, November 21, Dr. Derrick Vail, Northwestern University Medical School, Chicago, spoke on corneal transplantation. The meeting was in honor of Mr. Russell Tyson, who is retiring as president of the society after more than thirty years in office.

Chicago

The Jaffe Memorial Lecture.—Dr. Paul R. Cannon, chairman and professor of the pathology department, University of Chicago School of Medicine, will deliver the third Richard H. Jaffe Memorial Lecture of the Institute of Medicine of Chicago at the Palmer House on Friday, November 28, on "Tissue Synthesis as a Problem in Pathology."

Course on Atomic Bomb Perils.—The University of Chicago's Institute of Radiobiology and Biophysics has enrolled nineteen physicians representing the Army, Navy and U. S. Public Health Service in a six months' course in the prevention of radiologic hazards resulting from atomic bombs. Raymond E. Zirkle, Ph.D., is director of the institute.

North Side Branch Meeting.—The North Side Branch of the Chicago Medical Society will meet Thursday, December 4, at the Drake Hotel at 8 p.m. Dr. Ovid O. Meyer, University of Wisconsin Medical School, Madison, Wis., will speak on "The Anticoagulants in Cardiac and Vascular Diseases," and Karl P. Link, Ph.D., also of the university, Madison, will speak on "The Anticoagulant Dicumarol."

Research in Degenerative Diseases.—The Mary and Walter S. Ross Research Fund has been established at Northwestern University Medical School by a $50,000 gift from Walter S. Ross, Chicago realtor and member of Northwestern University Associates. The gift will be used to support research in such diseases of adulthood and old age as heart and kidney ailments, hypertension, arthritis and cancer.

Dr. Baer to Address Institute.—At the thirty-second annual meeting of the Institute of Medicine of Chicago, to be held in the Red Lacquer Room of the Palmer House on Tuesday evening, December 2, Dr. Joseph L. Baer, Rush clinical professor emeritus of obstetrics and gynecology, University of Illinois College of Medicine, will deliver the presidential address on "American Obstetrics and Gynecology: A Mature Specialty."

Dr. Wirth Dies.—Elmer H. Wirth, Ph.D., head of the department of phamacognosy and pharmacology in the College of Pharmacy, University of Illinois Professional Colleges, who had been professor at the university since 1922, died September 26 in Illinois Research Hospital, aged 52, of hypertensive heart disease and nephrosclerosis. Dr. Wirth had been an auxiliary member of the U. S. Pharmacopoeial Revision Committee since 1925 and vice chairman of the National Formulary Revision Committee and chairman of the subcommittee on pharmacology since 1940.

INDIANA

The Hoosier Fifty Year Club.—Gold lapel pins and certificates of distinction were presented to a hundred and eighty-three Hoosier physicians who have practiced medicine for fifty years or more, at the ninety-eighth annual dinner of the Indiana State Medical Association meeting at French Lick October 30. The pins bear the name of the association and the words, "Fifty Year Club."

KENTUCKY

Certificate of Appreciation.—A certificate of appreciation from the University of Louisville School of Medicine was given to Dr. Robert B. S. Ishmael, Winchester, in recognition of his fifty years' service as a physician. Dr. Ishmael graduated from the Kentucky School of Medicine, Louisville, 1897, and since that time has engaged in practice in Winchester.

Personal.—Dr. Clarke W. Mangun Jr., of the U. S. Public Health Service, has been appointed director of the Tuberculosis Control Division of the State Board of Health, succeeding Dr. Edward N. Maxwell, resigned. Dr. Mangun, a graduate of State University of Iowa College of Medicine, Iowa City, 1943, has spent two years in tuberculosis control work in Florida. He served as a medical officer during the war and was commissioned in the Public Health Service in 1945.

LOUISIANA

Establish Visual Aid Program.—A five year visual aid training and production program, approximating $200,000 in cost, has been established in the Newcomb Art School, Tulane University of Louisiana, New Orleans, to provide health educational materials for the state board of health and the New Orleans Health Department. Funds will be made available by a joint pooling of money ordinarily used for health education materials of the two health agencies, and by sections on cancer, maternal-child health, tuberculosis, crippled children and venereal disease control. The services to be provided by the new school of art include: (1) training students in the production

of visual aid materials under a five year curriculum; (2) production of materials including photography, film strips, animated presentations of statistical, graphical and pictorial matter, exhibition layouts and the development of pamphlets and posters; (3) consultation service to the visual aid consultant and joint advisory committee on public health education, and (4) training of selected members of the two health agencies in the visual aid program. The city and state health departments will supply a portion of the funds, secure services of a visual consultant and develop a joint advisory committee on public health to work with the consultant in planning the audiovisual art program. Instrumental in establishing the program were Drs. Waldo L. Treuting, New Orleans, president of the state board of health; John M. Whitney, superintendent of the New Orleans Health Department; Dr. James S. May, Franklin, Dr. Ben Freedman and Miss Margaret C. Moore, New Orleans, all of the state board of health, and Roy O. Trahan, assistant professor of photography in the Newcomb School of Art.

MARYLAND

The Friedenwald Memorial Lectures.—Dr. Walter L. Palmer, Billings Hospital, Chicago, gave the second annual Dr. Julius Friedenwald Memorial Lecture on October 23 at the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, on "Ulcerative Colitis." The lectures were established at the University in 1941 in honor of Dr. Friedenwald, formerly professor of gastroenterology.

MASSACHUSETTS

Personal.—Dr. Howard B. Sprague, Boston, spoke on "The Relationship of 'Coronary' Heart Attacks to Trauma and Strain" at the meeting of the International Claim Association, Swampscott, September 16.——At a recent meeting of the Veterans of Foreign Wars, Dr. William R. Morrison, Belmont, was elected surgeon general of the organization.——Dr. David D. Scannell, Jamaica Plain, has been appointed by the governor to the State Board of Education.

Dr. Garland Appointed Editor.—Dr. Joseph Garland, Boston, has been named to succeed the late Dr. Robert N. Nye as editor of the *New England Journal of Medicine*. Dr. Garland, a graduate of Harvard Medical School, Boston, 1919, has served on the editorial board of the journal for twenty-five years and has practiced pediatrics in Boston for twenty-six years. The *New England Medical Journal*, official organ of the Massachusetts Medical Society and the New Hampshire Medical Society, was purchased by the former in 1921 under the name, *Boston Medical and Surgical Journal*. The late Dr. Walter P. Bowers was editor until 1937, preceding Dr. Nye.

China Honors Dr. Moore.—Generalissimo Chiang Kai Shek has awarded the Chinese decoration Yen Hui Special Class, to Dr. Merrill Moore of Boston for outstanding and meritorious service while on duty as surgeon of the Nanking Headquarters Command during 1946. The award was made November 1 at the quarters of Lieut. Gen. Albert C. Wedemeyer at Fort George G. Meade, Md., by General J. L. Huang of the Chinese Army, who was a classmate of Dr. Moore at Vanderbilt University, Nashville, Tenn. The citation was read by General Peter Pi, military attache of the Chinese Embassy in Washington. Colonel Moore served in the South Pacific Theater in 1942-1944 and in the Philippines in 1945 prior to his assignment to the China Theater.

NEW JERSEY

Statewide Program for School Children.—A statewide program to improve the health of school children in New Jersey is being sponsored by the state health department, the New Jersey Medical Society and its Woman's Auxiliary. The program was developed after a year of conferences between Dr. Wilson G. Guthrie, Trenton, of the state department of education, and Dr. Samuel Blaugrund, Trenton, of the public health committee of the medical society. The four points of the program are:

1. When possible, assembly-line physical examinations of school children should be abandoned in favor of individualized studies in presence of the parents by qualified physicians, properly remunerated.
2. As a minimum, the examination should be held on admission to school, to the fourth grade, to the eighth grade and to the twelfth grade.
3. Each county superintendent should be required to add a psychiatrist to the county school system, possibly on a consultative rather than full time basis.
4. All school teachers and adult school personnel should be given roentgen examinations for tuberculosis every year rather than every third year, as at present.

The woman's auxiliaries of the various county medical societies are taking the initiative in organizing county councils to interest local authorities and voluntary agencies of each community in the program.

NEW YORK

Graduate Study in Anesthesiology.—The second postgraduate assembly will be conducted by the New York State section of the American Society of Anesthesiologists, Inc., on December 4-5 at the Hotel New Yorker, New York. Twelve scientific sessions will be devoted to teaching fundamental subjects of recent concern to anesthetists. The faculty will consist of authorities from various sections of the country.

Dr. Wyatt Named Head of Pediatrics Department.—Dr. Tryee C. Wyatt was appointed professor of pediatrics and chairman of the pediatric department of Syracuse University College of Medicine. Dr. Wyatt received his M.D. degree from Syracuse University College of Medicine in 1922. From 1922 to 1927 he was connected with the department of pathology; then followed appointments at Peter Bent Brigham Hospital, Boston, and New York Nursery and Child's Hospital and Cornell University Pediatric Department, New York. He will continue to direct the pediatric pathology division at Syracuse Memorial Hospital.

New York City

Fourth Cancer Clinic Opened.—A cancer prevention-detection clinic for well persons only opened at Long Island College Hospital, Brooklyn, September 27. Dr. Elmer H. Loughlin, Brooklyn, heads the clinic.

Institute of Clinical Oral Pathology.—Dr. Joseph Harkavy will read a paper entitled "Allergic Manifestations in the Oral Cavity" at the next monthly conference of the New York Institute of Clinical Oral Pathology, which will be held Monday, November 24, New York Academy of Medicine, 9 p. m.

Cornerstone Laid.—The cornerstone for a new six story $2,000,000 building for the Jewish Sanitarium and Hospital for Chronic Diseases, Brooklyn, was laid October 26 at Rutland Road and East Forty-Ninth Street. With the superstructure already completed, the new structure is expected to be available for occupancy in about a year. The building, covering almost a two square block area, will add over three hundred beds to the hospital's present five hundred and fifty. An entire floor will be dedicated to research on incurable diseases. Special laboratories, clinics, lecture halls and auditoriums will be available to physicians for study and diagnosis. Two wings will be devoted exclusively to the care of children with infantile paralysis and rheumatic cardiac conditions.

Infant and Mother Mortality Reduced.—Infant and mother mortality in New York City has been reduced to an all-time low since 1941, according to the Maternity Center Association. In 1941 an average of 2.2 mothers died for every thousand live deliveries, while the maternal mortality rate in 1946 had dropped to 1.2 for every thousand live births. During the same period the infant mortality rate dropped from about 31 to about 28 for every thousand live births. Because of the pressure on hospitals for maternity care in New York City, doctors are forced to discharge mothers and their babies from the hospital in from five to eight days in many cases. Because of the serious financial conditions of the voluntary hospitals there is no promise of alleviating this situation in the immediate future. The director of the national organization founded to promote better maternal care urged the wholehearted support of the United Hospital Fund's sixty-ninth annual compaign to help solve this problem. The United Hospital Fund seeks $2,383,887 to help meet the current operating deficits of its eighty-nine member voluntary hospitals. The campaign will continue through November.

OHIO

Seminar in Electrocardiography.—The Society of General Physicians, Cincinnati, is offering a course of eight lectures, "Introduction to Electrocardiography," at the cardiac laboratory of the University of Cincinnati College of Medicine. The first lecture was given November 18, and succeeding lectures will be on Tuesday and Thursday mornings from 10 to 12 o'clock through Tuesday, December 16. The fee is $25.

Executive Director of Cleveland Clinic.—Clarence M. Taylor, Cleveland, has been made executive director of the Cleveland Clinic, which has been without an operating head since the death of Mr. Edward C. Daoust in an airplane accident last summer. Mr. Taylor has been associated with the Lincoln Electric Company of Cleveland since graduation from Western Reserve University in 1916, with the exception of three years as a pilot in the Army Air Corps in World War I.

PENNSYLVANIA

Motion Picture Films Available.—Several films have recently been added to the library of 16 mm. sound films available to lay and professional audiences through the Committee on Public Relations of the Medical Society of the State of Pennsylvania. The new pictures include "They Live Again," a biography of Banting and his discovery of insulin; "Man's Greatest Friend," a treatise on dogs and their service to mankind, particularly in medical research; "The Story of Dr. Jenner"; "Miracle Money," exposing the activities of a quack cancer doctor; "Be Your Age," dealing with heart disease, and the March of Time film, "Men of Medicine," showing the long training necessary to become a physician and the socioeconomic problems to be faced.

Philadelphia

Dr. Macfarlane Honored.—The Cancer Research Volunteer Group of the Woman's College Hospital of Philadelphia has presented to the Woman's Medical College of Pennsylvania, Philadelphia, a portrait of Dr. Catharine Macfarlane, professor of gynecology, in recognition of her work in cancer prevention. Dr. Macfarlane's clinic, established in 1938 at the Woman's College Hospital, was the second clinic of its kind in the country. The Volunteer Group is composed of 670 women who have reported to Dr. Macfarlane for periodic examinations during the nine years of the clinic's existence. Grants from the American Medical Association from 1938 to 1946 enabled her to continue the work of the clinic during that time. Since 1946 the clinic has been supported by the Volunteer Group and by private contributions. In 1940 Dr. Macfarlane received the Gimbel Award "for outstanding service to humanity in Philadelphia."

SOUTH DAKOTA

State Association to Publish Journal.—The South Dakota State Medical Association will begin publication of its own journal, *South Dakota Journal of Medicine*, January, 1948. Dr. Roland G. Mayer, Aberdeen, secretary of the association, will serve as temporary editor pending appointment of a permanent editor. Dale Whitcomb, Sioux Falls, will be managing editor and John C. Foster, also of Sioux Falls, executive secretary of the association, business manager. The association has published, since December 1946, *This is Your Medical Association*, a bulletin, which contained reviews of hospital case reports. The association is soliciting articles for publication.

Practitioners Becoming Clinical Teachers.—Practicing physicians and surgeons in Vermillion, Yankton and Sioux Falls, and in Sioux City, Iowa, are doing clinical teaching for the University of South Dakota School of Medical Sciences, Vermillion. Students are taken by bus to the cities where the doctors are located. Physicians participating in the program are Drs. Chester B. McVay, Francis J. Abts and Robert F. Livingston, all of Yankton; Drs. Hugo C. Andre, Harold F. Hansen, Eugene M. Stansbury and George T. Jordan, Vermillion; Dr. William E. Donahoe, Sioux Falls, and Drs. Philip F. H. Pugh and Robert N. Larimer of Sioux City, Iowa. Material that is difficult to get for class work is being furnished through the state hospital at Yankton. Classrooms and other facilities are being furnished by the Sacred Heart Hospital at Yankton.

TENNESSEE

Dr. Mulder Goes to Chicago.—Arthur G. Mulder, Ph.D., is leaving the University of Tennessee College of Medicine, Memphis, to go to Loyola University School of Medicine, Chicago, as associate professor in physiology. Dr. Mulder came to the university in 1927 as assistant professor of physiology from the University of Minnesota, Minneapolis, where he received his Ph.D. degree in 1926. He was appointed associate professor in 1927 and served as acting head of the department in 1929-1930 and in 1936.

WEST VIRGINA

X-Ray Survey Completed.—The state's first mass community x-ray survey was conducted in Clarksburg September 22 to October 10. Before the survey started all school children in Harrison County were given tuberculin tests, and all positive reactors were brought to Clarksburg for roentgen examination. Of the 11,777 children tested, 2,045, or 17.4 per cent, were reactors.

Activities of State Society Council.—At a meeting of the Council of the West Virginia State Medical Association, Charleston, September 24, the renewal of the contract with the Veterans Administration for outpatient care of veterans and approval of the fee schedule was turned over to a special committee to confer with Dr. Paul R. Hawley, chief medical director of the Veterans Administration. The conference of County Society Secretaries, an annual event prior to World War II, was ordered resumed in 1948. The council approved creation of a new section on urology, such approval to be reported to the house of delegates in 1948. The council approved the appointment of eleven men to a committee of physical restoration standards. The next meeting of the West Virginia State Medical Association was set for May 10-12, 1948 in Huntington. The council voted the following physicians to honorary life membership: Jack W. Ferguson, Kenova; Charles L. Parks, Fairmont, and Frank J. Moore, Killarney.

WISCONSIN

Annual Loevenhart Lecture.—The second annual Arthur S. Loevenhart Lecture was given November 6 by Dr. Wilder G. Penfield, McGill University Faculty of Medicine, Montreal, Canada, on "Psychical Seizures," at the University of Wisconsin Medical School, Madison. This lectureship, which is sponsored by Phi Delta Epsilon Medical Fraternity, is presented in honor of the late Dr. Arthur S. Loevenhart, who held the chair of pharmacology from the time of its creation until his death. Dr. Loevenhart was known especially for his research on the pharmacology of tryparsamide.

GENERAL

Annual Meeting of Surgical Association.—The fifty-ninth annual session of the Southern Surgical Association will be held at Hollywood, Fla., December 9-11 under the presidency of Dr. Frank S. Johns, Richmond, Va. In addition to a diversified scientific program there will be golf tournaments Tuesday and Wednesday mornings. The association dinner will be Wednesday at eight o'clock. Dr. Johns will deliver the presidential address.

Tropical Medicine Societies Annual Meetings.—The National Malaria Society, the American Society of Tropical Medicine and the American Academy of Tropical Medicine will hold their annual meetings conjointly December 2-4 at the Hotel Atlanta-Biltmore, Atlanta, Ga. The program will consist of six scientific sessions. An outstanding feature will be a symposium on virus diseases in the tropics. Various social functions will also be held. Registration will begin Monday afternoon, December 1.

Symposium on Antibiotics.—At the annual meeting of the American Association for the Advancement of Science, December 26-31, a symposium on antibiotics will be presented in Section N (medical sciences) at the Hotel Sherman, Chicago, beginning at 9 a.m. December 29 and 30. E. Vincent Cowdry, Ph.D., Washington University School of Medicine, St. Louis, will preside. Introduction will be by Selman A. Waksman, Ph.D., New Brunswick, N. J. A general session will be held Tuesday afternoon, December 30, at 1:30.

Dr. Sheard Awarded Medal.—Dr. Charles Sheard, Mayo Clinic, Rochester, Minn., was awarded the Ward Burdick Medal and Award of the American Society of Clinical Pathologists October 28 at its meeting in Chicago. The citation was made in recognition of his investigations in and developments of the field of spectroscopy, photelometry and spectrophotelometry as applied to biology and medicine. He delivered a lecture on the progress made in photo-optics and photoelectricity, with particular reference to the problems of the clinical laboratory.

Railway Surgeons Meeting.—The American Association of Railway Surgeons will hold their fifty-eighth annual meeting November 23-25 at the Palmer House, Chicago, under the presidency of Dr. Ford M. Summerville, Oil City, Pa. Subjects to be discussed include cardiovascular problems in railroad industry; industrial aspects of diabetes mellitus; practical problems in handling rheumatic fever; injuries about the shoulder; allergic problems of the railway surgeon; gallbladder disease; surgery of the esophagus; primary and early secondary closure of open wounds of the hand, and use of antibiotics in ocular infections. The meetings are open to all members of the medical profession, and there is no registration fee.

Sickness Statements for Rail Workers. — Physicians throughout the nation are being asked to furnish medical evidence to substantiate the claims of railroad workers who may now draw cash sickness benefits under the Railroad Unemployment Insurance Act. The Railroad Retirement Board pointed out that unless an application is mailed not later than the seventh

day after the first day of sickness claimed, it may not be received within the legal time limit for filing applications. As a result the employee may lose one or more days' benefits. Doctors are asked either to return each completed Statement of Sickness to the patient or to mail it promptly to the office of the board to which it is addressed.

Society of Clinical Pathologists.—The American Society of Clinical Pathologists, meeting in Chicago October 27-30, installed Dr. Theodore J. Curphey, Hempstead, N. Y., as president and elected Dr. Osborne A. Brines, Detroit, president-elect. The gold medal for excellence in scientific exhibit was presented to Dr. Arthur H. Wells, Duluth, Minn., for his exhibit, "Clinicopathologic Conference." The silver medal for excellence in scientific exhibit was presented to Dr. Albert L. McQuown and Dr. Emma S. Moss, both of New Orleans, for their exhibit on "Etiologic Agents of Mycotic Infections, Laboratory Methods of Identification and Classification." The bronze medal was presented to Dr. Milton G. Bohrod, Rochester, N. Y., for his exhibit on "Medical Photography in a General Hospital."

Vincent du Vigneaud Receives Borden Award.—A gold medal and $1,000 were given to Vincent du Vigneaud, Ph.D., Cornell University College of Medicine, New York, as the first Borden Award to the Association of American Medical Colleges at its annual dinner October 27. The recommendation of the award was made by a committee of the association consisting of Drs. Brian B. Blades, Washington, D. C., James M. McNaught, Denver, Charles H. Best, Toronto, Canada, John B. Youmans, Chicago, and Edward S. Doisy, Sc.D., St. Louis. Professor du Vigneaud has been an active investigator in biochemistry for many years. Noteworthy contributions have been made to the chemistry of insulin, sulfur-containing amino acids and biotin and to the nutritional significance of amino acids containing sulphur.

Dr. Bauer Receives Health Education Award.—Dr. William W. Bauer, director of the Bureau of Health Education of the American Medical Association since 1932, has been awarded the Elisabeth Severance Prentiss National Award in Health Education, given each year by the Cleveland Health Museum to the person who has made the most outstanding contribution to health education. The presentation was made November 17 at the annual civic luncheon of the Cleveland Health Museum in Cleveland. The Prentiss Award was established in 1943 in memory of the museum's first foundation benefactor to stimulate health education. Names of the annual recipients, selected by a national committee, are inscribed on a bronze plaque at the museum, and the winners themselves receive a replica of the plaque and an embossed certificate.

Study of Child Health Services.—In the study of child health services, undertaken by the American Academy of Pediatrics more than two years ago, every practicing physician was asked to fill out a questionnaire describing the services rendered to children, and 60 per cent of all physicians in private practice responded. Much of the information has already been processed and put into tabular form. This job involves statistical analysis of answers from physicians, hospitals and community health agencies. The analysis is proceeding rapidly, and tabulated data are being returned to the states in increasing volume. Each state will prepare individual reports of the findings. The state reports will show the distribution of doctors and dentists in the state and the contribution they are making to child health. In writing state reports consideration will be given to what the state wants to accomplish in terms of public service.

The more than fifty tables that states will receive tabulate the data collected. On receipt of the tables, the state chairman of the American Academy of Pediatrics confers with the state medical society, the state dental society and the state health department regarding the interpretation and use of the material in states where these agencies have cooperated in the conduct of the study. Further details pertaining to individual states may be obtained from the academy's state chairmen.

At the annual meeting of the American Academy of Pediatrics in Dallas, Texas, on December 9, preliminary papers describing the results on the national level will be presented. A paper on "The Total Volume of Medical Care to Children, Based on an Analysis of Eight Selected States" will be presented by Dr. Warren R. Sisson, chairman of the academy's Committee for the Study of Child Health Services. Dr. John P. Hubbard, director of the Study, will read "A Review of Private Practice: Pediatricians and General Practitioners." A third paper on "Facts and Figures on Pediatric Education" will be read by Dr. John McK. Mitchell, who has conducted a study of pediatric education through personal visits to all the approved medical schools of the United States and two of those being studied in Canada.

LATIN AMERICA

Ophthalmologists Meet in Havana.—Forty papers have been arranged for the third Pan-American Congress of Ophthalmology January 4-10, 1948 at the University of Havana School of Medicine in Cuba. The speakers are about equally divided between the northern half of the hemisphere and the Latin American countries. Slides bearing résumés in one other language will be shown with each paper to facilitate understanding by those unfamiliar with the language of the speaker. Topics for discussion include operations for cataract, glaucoma and crossed eyes; parasites that attack the eyes; effects of high blood pressure, syphilis and tropical diseases on the eyes; tumors; sulfonamide and penicillin therapy, and diseases peculiar to high altitudes of such countries as Peru and Bolivia. Among the invited guests are Sir William Stewart Duke-Elder, London, England, who will speak on "Penicillin in Ophthalmology"; Dr. Emily Elizabeth Cass, London, British physician of Gibraltar, on strabismus; Professor A. Fuchs, now in Shanghai, China, on new and rare eye diseases, and Dr. Hermenegildo Arruga Liró, Barcelona, Spain, on "Cataract and Retinal Detachment." Dr. Derrick T. Vail, professor of ophthalmology, Northwestern University Medical School, Chicago, will deliver the Harry Cardle Lecture in honor of the founder and first president of the congress.

An entire day will be devoted to the prevention of blindness. A round table discussion on causes of blindness and means of prevention will be held in the morning, and the afternoon session will be concerned with preventive methods used in schools and industry. A series of instructional courses will be given the mornings of January 6, 7 and 8: thirty in English, five in Portuguese and fifteen in Spanish.

PANAMA CANAL ZONE

Meeting at Margarita.—The Medical Association of the Isthmian Canal Zone met at the Margarita Hospital, Margarita, October 21. The joint staffs of the Colon and Margarita hospitals presented a program which included "Pernicious Anemia in the Tropical Negro," "A Case of Stevens-Johnson Syndrome Associated with Purulent Meningitis" and "Chiari-Frommel Syndrome with Report of a Case."

PUERTO RICO

Committee to Survey Medical Services.—A committee to survey the medical services and charity hospital problems of Puerto Rico was organized October 16 at the offices of the Puerto Rico Medical Association in San Juan. Senator Vicente Geigel Polanco was named chairman, Dr. Manuel A. Astor, vice president, and Dr. A. Oliveras-Guerra, secretary. A study has been made of the number of physicians in active service in each of the seventy-seven municipalities of Puerto Rico to determine the medical services necessary for each town. A survey covering the number of Puerto Rican medical students now in United States universities receiving tuitionship granted by the government of Puerto Rico will be conducted by the committee, in order to recruit their services in accordance with the provisions of the tuitionship.

Marriages

WALTER FRANCIS BECKER, Kaufman, Texas, to Miss Laura Virginia Pratt of Chatham Hill, Va., June 21.

HUGH JAMES MCLANE, Detroit, to Miss Margaret Ellen Osborne of Upper Montclair, N. J., July 13.

JOHN W. COLGAN, Rochester, N. Y., to Miss Mary Elizabeth Summers of San Antonio, Texas, July 2.

J. RALSTON WELLS, Jackson, Miss., to Miss Annie Wood Borden of Daytona Beach, Fla., July 12.

JESS VICTOR COHN to Miss Norma Jane Hana, both of Miami Beach, Fla., in Philadelphia, September 7.

MARY EVANGELINE MILLER, Needham, Mass., to Mr. Albert Giles Dietrich of Bangor, Maine, July 12.

WILLIAM SPIES HAUBRICH, Columbus, to Miss Eila Kaarina Kari of Lakewood, Ohio, June 21.

EDWIN H. TORREY, Philadelphia, to Miss Miriam B. McNally of Harrisburg, Pa., June 7.

DAVID Q. EWING to Miss Madeline Nixon Robertson, both of Philadelphia, July 29.

NORBERTO ACEVEDO to Miss Sylvia Lucio, both of Arecibo, Puerto Rico, June 28.

Deaths

Raymond C. Gillogly ✦ Newman, Ill.; born Nov. 10, 1873; Kentucky School of Medicine, Louisville, 1894; Chicago Homeopathic Medical College, 1899; served as Douglas County coroner and president of the school board; for two terms representative to the state legislature from the 34th Senatorial District; captain during World War I and later major in the medical reserve corps; past commander of the Staunton Burgett American Legion post at Newman and delegate from the post at the Legion Convention at Paris, France, in 1927; died September 5, aged 74, of arteriosclerosis and mitral stenosis.

John Allen Hawkins ✦ Solebury, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1892; an Affiliate Fellow and in 1916 member of the House of Delegates of the American Medical Association; member of the American Urological Association; served overseas during World War I; colonel in the medical reserve corps of the U. S. Army, not on active duty; past president of the Western Pennsylvania Reserve Officers' Association; served on the staffs of Mercy, St. Francis and South Side hospitals in Pittsburgh; died September 7, aged 81, of myocarditis.

Alva Elnathan Abrams, La Jolla, Calif.; Albany (N. Y.) Medical College, 1881; formerly practiced in Hartford, Conn., where he was president of the Hartford Medical Society and on the staffs of St. Thomas and Babies' hospitals and Hartford Orphan Asylum; died August 24, aged 91, of arteriosclerotic heart disease.

Frank Joseph Albers, Cincinnati; University of Cincinnati College of Medicine, 1918; member of the American Medical Association; on the staff of the Jewish Hospital, where he died August 26, aged 53, of multiple myeloma.

Louis Alpert, Middleboro, Mass.; Boston University School of Medicine, 1929; member of the American Medical Association; affiliated with Lakeville State Sanatorium, died August 17, aged 44, of Hodgkin's disease.

Paul Raymond Badger, Toledo, Ohio; Rush Medical College, Chicago, 1904; member of the American Medical Association; served during World War I; major, medical reserve corps, United States Army, not on active duty; died August 25, aged 69, of chronic nephritis.

Nathan Blaustein, New York; Long Island College Hospital, Brooklyn, 1914; member of the American Medical Association; served on the staff of Beth David Hospital; died in Interlaken August 27, aged 61, of carcinoma of the lung.

Edward Jackson Burns, Bangs, Texas; University of Texas School of Medicine, Galveston, 1898; member of the American Medical Association; served as an officer during World War I; on the visiting staff of the Medical Arts Hospital in Brownwood; local surgeon for the Atchison, Topeka and Santa Fe Railroad; died recently, aged 70, of arteriosclerosis and heart disease.

Harry L. Carpenter ✦ Richmond Calif.; College of Physicians and Surgeons, San Francisco, 1904; an Affiliate Fellow of the American Medical Association; past president of the Contra Costa County Medical Society; died August 18, aged 72, of coronary thrombosis.

Kathryn Mitchell Bainbridge Cass, Port Clinton, Ohio; Illinois Medical College, Chicago, 1896; died in East Chatham, N. Y., August 26, aged 83, of diabetes mellitus and chronic nephritis.

John Marion Clement, McLeansboro, Ill.; University of Tennessee Medical Department, Nashville, Tenn., 1898; died August 13, aged 75, of carcinoma of the bladder and prostate.

George Becker Cornick ✦ San Angelo, Texas; University of Texas School of Medicine, Galveston, 1919; member and past president of the Texas Pediatric Society; member of the Southern Medical Association and the American Academy of Pediatrics; specialist certified by the American Board of Pediatrics; in 1921 a member of the American Relief Administration serving in Russia; died August 28, aged 52, of tuberculosis.

William A. Craig, Eudora, Ark.; University of the South Medical Department, Sewanee, Tenn., 1901; member of the American Medical Association; died August 10, aged 70.

Nazareth John Crisp ✦ Benicia, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1925; served as health officer of Benicia; part time contract surgeon at Benicia Arsenal from 1934 to 1942; died August 26, aged 54, of acute congestive heart failure and polycythemia.

Elmer Irl Dunkelberg ✦ Waterloo, Iowa; Jefferson Medical College of Philadelphia, 1910; past president of the Black Hawk County Medical Society; served during World War I; died August 25, aged 58, of coronary occlusion.

Walter Clarence Engle, Indianapolis; Medical College of Indiana, Indianapolis, 1897; died in Central State Hospital August 16, aged 77.

Creighton Pemberton Farnsworth, Los Angeles; American Medical Missionary College, Battle Creek, Mich., and Chicago, 1900; died August 7, aged 75.

Claude John Brandt Flowers, Louisville, Ky.; University of Maryland School of Medicine, Baltimore, 1907; served during World War II; member of the rating board of the Veterans Administration; died August 28, aged 65, of coronary thrombosis.

Jacob Irving Fort ✦ Newark, N. J.; Columbia University College of Physicians and Surgeons, New York, 1907; affiliated with St. Michael's, Presbyterian and Babies hospitals; died August 30, aged 67, of coronary occlusion.

Winsor Farnum Fryer, Middleboro, Mass.; Hahnemann Medical College and Hospital, Philadelphia, 1886; died June 3, aged 90, of arteriosclerosis.

Ronald Francis Garvey ✦ Olean, N. Y.; University of Buffalo School of Medicine, 1925; past president of the Cattaraugus County Medical Society; affiliated with Olean General Hospital and St. Francis Hospital, where he died August 26, aged 50, of perforated gastric ulcer.

Joseph Huron Green, Louisville, Ky.; Memphis (Tenn.) Hospital Medical College, 1902; member of the American Medical Association; died August 24, aged 69, of cerebral hemorrhage.

Edna Kathryne Sexsmith Harper ✦ Greenfield, Iowa; University of Illinois College of Medicine, Chicago, 1918; for many years county coroner; served as treasurer and president of the State Society of Iowa Medical Women; died August 19, aged 63, of heart disease and hypertension.

Henry Hawkins ✦ Boston; University of Pennsylvania Department of Medicine, Philadelphia, 1902; member of the New England Ophthalmological Society; affiliated with Boston City Hospital, Massachusetts Eye and Ear Infirmary, Audubon Hospital and Cambridge City (Mass.) Hospital; ophthalmologist for Perkins Institute for the Blind; died in Eastern Maine General Hospital in Bangor September 4, aged 74, of cardiorenal disease.

Roberts Alfred Hearn, Battle Creek, Mich.; Columbia University College of Physicians and Surgeons, New York, 1920; formerly with the U. S. Public Health Service as director of industrial hygiene, state board of health of Arkansas; served as medical director of the Indiana Division of the Republic Aviation Corporation in Evansville; affiliated with the American Legion Hospital; died September 1, aged 55, of tuberculosis.

Sarah Lincoln Hunter, Machias, Maine; Woman's Medical College of Pennsylvania, Philadelphia, 1891; member of the American Medical Association; honorary member of the Maine Medical Association; died in Hingham, Mass., August 13, aged 90, of cerebral hemorrhage.

Samuel Burford Innis, Troy, Ala.; Meharry Medical College, Nashville, Tenn., 1905; died July 15, aged 70.

Fairley Patterson James, Laurinburg, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1916; member of the American Medical Association; past president of the Scotland County Medical Society; served during World War I; on the staff of Scotland County Memorial Hospital; first president of the Rotary Club; died August 22, aged 56, of heart disease.

Jacob David Khodoff, New York; University and Bellevue Hospital Medical College, New York, 1899; member of the American Medical Association; died August 7, aged 70, of coronary thrombosis.

Agnes Sholly Knights, Selinsgrove, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1897; member of the American Medical Association; died June 13, aged 82.

Bertil Thomelius Larson ✦ Pontiac, Mich.; University of Michigan Medical School, Ann Arbor, 1917; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; on the staffs of the Pontiac General, Oakland County Contagious and St. Joseph's hospitals; died July 20, aged 54.

Abraham Levine ✦ Brooklyn; New York Homeopathic Medical College and Flower Hospital, New York, 1918; member of the staff of the Israel Zion Division of the Maimonides Hospital; died August 30, aged 54, of coronary thrombosis.

Robert J. McDowell, Auburn, N. Y.; College of Physicians and Surgeons, Baltimore, 1911; member of the American Medical Association; died in City Hospital August 25, aged 69, of multiple myeloma.

John Franklin McNeely, Munhall, Pa.; Starling Medical College, Columbus, 1894; member of the American Medical Association; died August 21, aged 82, of glomerulonephritis with uremia.

James Albert Mansfield, Boston; Jefferson Medical College of Philadelphia, 1896; also a graduate in pharmacy; member of the American Medical Association; died June 29, aged 80, of chronic nephritis.

William J. O'Donnell ✠ Rockford, Ill.; Chicago College of Medicine and Surgery, 1913; examining physician for Selective Service Board number 4 during World War II; served as county physician; on the staff of St. Anthony's Hospital; serving as president and secretary of the group; died August 24, aged 62, of carcinoma of the liver.

Willard Ealon Ogden, Joliet, Ill.; Saginaw Valley Medical College, Saginaw, Mich., 1899; died in St. Joseph Hospital August 3, aged 80, of hypertensive heart disease.

Martin Daniel Ott ✠ Davenport, Iowa; University of Minnesota Medical School, Minneapolis, 1920; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; past president of the Scott County Medical Society; served during World War I; physician for the Iowa Soldiers' Orphans Home; affiliated with Mercy, St. Luke's and Isolation hospitals; died August 20, aged 56, of heart disease.

Frederick William Palmer, Bridgewater, N. Y.; University of Buffalo School of Medicine, 1917; died August 26, aged 52, of organic heart disease.

James Alva Paradise, Closter, N. J.; State University of Iowa College of Medicine, Iowa City, 1917; served during World War I; died August 26, aged 54, of coronary occlusion.

James Timothy Park, Schenectady, N. Y.; Albany (N. Y.) Medical College, 1894; died August 9, aged 85, of coronary sclerosis.

Charles Arthur Ravey ✠ Burlington, Vt.; University of Vermont College of Medicine, Burlington, 1918; formerly instructor in pathology and bacteriology at his alma mater; served as alderman, member of the state board of health and city health officer; on the staffs of Fanny Allen Hospital, Winooski, Mary Fletcher Hospital and the Bishop De Goesbriand Hospital, where he died August 27, aged 51, of coronary thrombosis.

LIEUT. OTTO JOHN JUHL (MC), U.S.N.R., 1913-1945

Pieter Samsom, Marysville, Calif.; Rijks-Universiteit te Leiden Faculteit der Geneeskunde, Netherlands, 1908; member of the American Medical Association; died August 11, aged 69.

William Charles Samuel, Clearwater, Fla.; Jefferson Medical College of Philadelphia, 1894; died in the Morton Plant Hospital August 26, aged 80, of pneumonia.

Myron Clark Schenk, Table Grove, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1895; served in France during World War I; died August 6, aged 74.

Jesse Schepps ✠ Brooklyn; University and Bellevue Hospital Medical College, New York, 1920; affiliated with the Jewish Sanitarium and Hospital for Chronic Diseases, Beth Moses Hospital and Kings County Hospital, where he died August 28, aged 49, of carcinoma.

James Arthur Shatswell, Beverly, Mass.; College of Physicians and Surgeons, Baltimore, 1890; member of the American Medical Association; affiliated with Beverly Hospital; died August 26, aged 83, of arteriosclerotic heart disease.

R. O. Shelton, San Diego, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; served during World War I; died August 19, aged 68, of coronary disease and diabetes mellitus.

Eugene Austin Shupp, Halifax, Pa.; Medico-Chirurgical College of Philadelphia, 1901; killed August 20, aged 78, when the automobile in which he was driving was struck by a locomotive.

William Candler Smith, Little Rock, Ark. (licensed in Arkansas in 1903); died in Baptist State Hospital August 22, aged 86, of appendicitis and peritonitis.

David Howard Solo, Philadelphia; Jefferson Medical College of Philadelphia, 1924; specialist certified by the American Board of Otolaryngology; demonstrator of laryngology at his alma mater; served during World War II; member of the American Medical Association; died in Jewish Hospital August 29, aged 46.

John T. Soraghan, St. Louis; Missouri Medical College, St. Louis, 1891; died in DePaul Hospital August 19, aged 80, of cardiorenal disease.

May W. Straley, Orange City, Fla.; New York Medical College and Hospital for Women, Homeopathic, New York, 1884; died in Johnson Nursing Home in DeLand, August 29, aged 84, of hypertension and arteriosclerosis.

Samuel Lewis Thetford, Boligee, Ala.; Medical Department of Tulane University of Louisiana, New Orleans, 1906; died in August, aged 67.

Wade Thompson, Anderson, S. C.; Baltimore Medical College, 1911; member of the American Medical Association; on the staff of Anderson County Memorial Hospital; died August 23, aged 60, of coronary thrombosis.

William Orlando Tibbels, Monette, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1916; formerly member of the state legislature; died August 28, aged 72, of coronary occlusion.

Eugene M. Tyler, Auburn, Neb.; University of Tennessee Medical Department, Nashville, 1885; died August 5, aged 84.

William Johannes Waihoja ✠ Lebanon, Mo.; Medical College of Virginia, Richmond, 1936; served in the European Theater during World War II and was decorated by the Belgian government on Aug. 19, 1945, receiving two citations and the Belgian Fourragere for meritorious service in Belgium from Oct. 1, 1944 to Jan. 15, 1945; affiliated with Wallace Memorial Hospital; drowned in the Lake of the Ozarks August 22, aged 39, while swimming.

John Wesley Wailes, Davis City, Iowa; College of Physicians and Surgeons, Keokuk, 1891; past president of the Decatur County Medical Society; member of the American Medical Association and the school board; affiliated with Decatur County Hospital in Leon, where he died August 1, aged 82.

Frank J. Walter ✠ Pine Grove, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1901; served as member of the board of education, county sheriff, deputy coroner and coroner; on the staffs of Lebanon Sanatorium and the Pottsville (Pa.) Hospital; died August 26, aged 69, of carcinoma.

Louis H. Wiman, Princeton, Ill.; Medical College of Indiana, Indianapolis, 1904; past president of the Bureau County Medical Society; died in the Perry Memorial Hospital August 24, aged 70, of heart disease.

Samuel Zielonka ✠ Cincinnati; Ohio-Miami Medical College of the University of Cincinnati, 1911; fellow of the American College of Surgeons; served during World War I; on the staff of the Jewish Hospital, where he died August 26, aged 60, of coronary thrombosis.

KILLED IN ACTION

Otto John Juhl Jr., Coronado, Calif.; University of Texas School of Medicine, Galveston, 1935; member of the American Medical Association and the State Medical Association of Texas; interned at Providence Sanitarium in Waco, Texas; served a residency at Children's Hospital in Philadelphia; began active duty as a lieutenant (jg) in the medical corps of the U. S. Naval Reserve in April 1941; promoted to lieutenant; reported missing in action in August 1942; declared dead July 12, 1945, aged 32.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 18, 1947.

Decline in Poliomyelitis: Administrative Measures

The outbreak of poliomyelitis, described in previous letters, is declining. The number of notified cases reached a maximum of 662 in the week ended September 6. In the following three weeks there were 572, 571, and 442 notifications. Food handlers should be warned to be particularly careful of personal hygiene. If one becomes ill he should not handle food for a fortnight. Although there is no evidence that flies are playing a part in the spread of the present outbreak, efforts should be made to minimize the fly nuisance. Fresh fruit and milk have been suspected in the past of playing a part as possible vehicles. Precautions may be taken by washing and peeling fruit before serving it and by boiling raw milk. Tonsillectomies, extraction of teeth, and ear, nose and throat operations should be avoided in the areas where cases are occurring.

Dr. R. Cruickshank, director of the Central Public Health Laboratory, mentioned that the virus was demonstrable in the oropharynx of 30 to 50 per cent of patients for some days before and after the onset of typical symptoms; it persisted in the stools of half the patients for three to four weeks after the onset. Although the tendency in America, as represented by Sabin, has been to stress the intestinal mode of spread, the respiratory was perhaps the commoner mode. The great rarity of infection among those nursing patients with poliomyelitis, despite the presence of the virus in the patient's feces, was in contrast with the findings in typhoid and dysentery.

The Use of Penicillin

Because of shortage of penicillin, in spite of increasing production, the Ministry of Health has issued a memorandum on its use. Only a small proportion of penicillin produced here is crystalline or white. This will increase, but for the present colored penicillin should be used whenever possible. Its potency is about 1,000 to 1,200 units per milligram. The white is much more expensive and need be used only for intrathecal, ventricular or subconjunctival administration. In almost all other conditions the yellow is equally effective. Under the conditions shown on the package the useful life of dry penicillin can be expected to exceed the date of expiration, but in solution the drug should be kept in a refrigerator. It is destroyed by acids and alkalis; by metals such as zinc, lead, copper and aluminium; by the primary alcohols; by oxidizing agents such as hydrogen peroxide and potassium permanganate, and by boiling, though it is not affected by heating to 60 to 70 C. for some minutes.

Penicillin should be used only in infections due to sensitive microbes. When there is any doubt a bacteriologic test should be made. The antibiotic must be administered by such methods as will bring it into contact with the infecting microbes, either locally or in the blood stream. Sterility of instruments, bottles and solutions must be maintained throughout. The amount administered must be sufficient to produce a bactericidal concentration in the infected focus, and the drug must be given long enough to eradicate the infection. Dosage must be adjusted to the patient and the disease. Usually it is best to start with large doses on the first day, or on the first few days when the treatment is likely to be lengthy. This can sometimes be followed by smaller doses to the end of the course. If the initial dose is too small, administration may have to be prolonged till the total amount used is greater than that required for more intensive therapy from the start. Excepting ophthalmic conditions and the dusting of powders into wounds, topical application alone does not always produce the desired effect; better results are obtained from systematic administration alone or in conjunction with local application.

Pharmacists have been licensed to dispense sterile aqueous injections after satisfying the authorities that their premises and staff are suitable for the purpose. They are inspected under the Therapeutic Substances Act. The firms have gone to considerable trouble and expense to meet the requirements of equipment and special accommodation required for dispensing sterile preparations. When a doctor does not himself prepare solutions of penicillin from a vial of the dry substance and an ampule of sterile water, the services of these licensed pharmacists should be utilized.

Acute Intestinal Obstruction Simulated by Renal Colic

From the Department of Surgery, University of Cape Town, Mr. M. Cole-Rous has reported (*Journal of Cape Town Postgraduate Medical Association*, 1947, p.196) a case of intestinal obstruction simulating renal colic. The mistaken diagnosis was made with confidence by the patient, who was a physician. He was middle-aged, short, thickset and powerful. The young surgeon whose advice he sought was alarmed before entering the house by bellowing which reverberated from the upper floor. The sick room was an unforgettable sight. Scattered about the floor were open medical textbooks and labeled bowls and other receptacles containing vomitus. On the floor on hands and knees was the patient, red in the face, sweating and bellowing with pain. He announced in a powerful voice that he was suffering from intestinal obstruction of two and one-half days' duration. During that time he passed neither flatus nor feces, despite a large number of purgatives taken and several enemas. Any imbecile who doubted this diagnosis need only look at the bowls of vomitus, which showed characteristic changes from stomach contents through bile staining to brown and finally to feculent material. The textbooks all agreed that his abdomen should immediately be opened. With some trepidation and much difficulty the surgeon persuaded him to submit to physical examination. While gazing at the enormous distended abdomen the surgeon remembered a clinical rule impressed on him by a valued teacher: "In every case of intestinal obstruction examine the hernial orifices.' In doing this the surgeon found himself unable to examine the right superficial inguinal ring because the right testis was drawn up so high that it lay over the ring and was so tender that it could not be drawn down. The patient was unaware of the unusual testicular position. He was certain that there had been no frequent calls to micturition. Testicular torsion could be excluded because the testis was normal in size and consistency. The right scrotum and the skin over the upper and inner part of the thigh were sensitive.

The recollection that renal pain is not infrequently referred down the genitofemoral nerve resulted in the suggestion that all the symptoms might be due to renal colic. Despite opposition, arrangements were made for cystoscopic examination by a urologist, who found congestion and edema of the right ureteral orifice, from which there was no urinary effluence. The ureteral catheter grated past an obstruction and as urine was aspirated the patient's bellowing diminished. Several days later he passed without difficulty a urinary calculus the size of a grain of wheat and left the nursing home rejoicing.

Formation of an Association of Medical Librarians

A new subsection of the Library Association devoted to the professional interests of medical librarians has been inaugurated in London. Various projects to advance the efficiency of medical libraries were discussed. These include a union list of medical periodicals and their location in British libraries, interlibrary loans and the exchange of material to assist in completing imperfect sets of important journals. In 1909 Sir William Osler suggested the formation of a body such as now has been

formed. At future meetings papers of a technical and bibliographic nature will be read and members of the medical profession will be welcomed as guests. The following members were appointed to manage the affairs of the group: C. C. Barnard (London School of Hygiene and Tropical Medicine); W. J. Bishop (Wellcome Historical Medical Museum); W. A. Lee (Liverpool Medical Institution); W. R. LeFanu (Royal College of Surgeons); T. J. Sheilds (British Medical Association); Miss E. Wigmore (National Institute for Medical Research), and G. F. Wilson (Manchester Medical Society).

MADRID

(From Our Regular Correspondent)

Oct. 30, 1947.

The National School of Phthisiology

Among the work recently undertaken by the Spanish health authorities, special mention is due to the National School of Phthisiology, recently founded as a dependency of the Ministry of the Interior and embodied in the National Association Against Tuberculosis.

The National School of Phthisiology is devoted to research and teaching. The former work is to be done by the Institute for Research on Tuberculosis and will comprise three different departments, pathologic anatomy, bacteriology and chemistry. Its doors will be open not only to the professors in the school but also to all those who submit working hypotheses which, by their interest, have earned the previous approval of the members of the teaching staff of the school.

The teaching services, which are closely connected with the research department, comprise four classes of study: one leading to the phthisiologist's diploma; one in which courses will be given to visiting officers of health; another with special courses on laboratory and radiology technics for health instructresses, and, finally, monographic courses on different subjects connected with this specialty.

In the rules for these courses it is stipulated that, in order to obtain a phthisiologist's diploma, a physician must study at the school for at least six months, during which time he shall be given theoretic and practical instruction; these diplomas will be exceedingly important for doctors, because without them posts will not be obtainable as phthisiologists in state, provincial or municipal establishments; the intention is to admit about thirty students selected by competitive examination in each course and to submit them to a qualifying test at the end. The courses will be arranged for doctors acting as visiting health officers (called, in Spain, *Medicos de Asistencia Medica Domiciliaria*) and country doctors possessing x-ray apparatus. Courses will last two months each and will be aimed especially at teaching physicians how to make early diagnosis of tuberculosis and carry out therapeutics with the artificial pneumothorax. The course for nurses, i. e. health instructresses, will have as its object to provide trained personnel who are thoroughly acquainted with the latest laboratory and radiology technics for all dispensaries and sanatoriums in Spain. Finally, the monographic courses for specialists will be short, and eminent Spanish and foreign doctors will lecture on subjects of current interest.

The medical staff of the National School of Phthisiology has been well chosen and includes some men with high reputations in the Spanish medical world. The director is Dr. A. Crespo Alvarez, the distinguished president of the Madrid Medical Association and one of the outstanding personalities in the world of Spanish cardiology and phthisiology. Great work is expected of him. The subdirector is Dr. F. R. Partearroyo, who is head of the Valdelatas Sanatorium. The director of studies is Dr. R. Navarro Gutierrez, head of a tuberculosis dispensary in Madrid, a pupil of Dr. M. Tapia's and author of important scientific writings on phthisiology in Spain. The Research Institute is to be placed under Dr. J. Blanco Sanchez, a well known phthisiologist. The heads of departments are: Dr. L. Arteta (pathologic anatomy), Dr. Perez Pardo (bacteriology) and Dr. Garmendia (chemistry). The institute's technical secretary is Dr. Marquez, an old pupil of Professor Hernando's and a collaborator of Dr. Crespo Alvarez's. Dr. F. Paz Espeso is professor of clinical instruction and treatment; Dr. F. Blanco Rodriguez, of epidemiology and statistics, and Dr. J. Gonzalez, of therapeutics. The Tuberculosis Surgery Department is in the hands of the distinguished surgeons Drs. P. Gonzalez Duarte and L. Nistal, specialists in thoracic surgery. In the Radiologic Technic Department there are Professors A. Mut and Miñana, and in the Otorhinolaryngology Department, Dr. Martin Calderin; while the director of the Schoolchildren's Dispensary attached to the school is Dr. Zapatero, with Dr. Garcia Alonso as head of the Infantile Tuberculosis Section. There will be a full staff of ancillary workers: assistant doctors, anesthetists, etc.

The National School of Phthisiology is situated in University City, in one of the buildings of the Faculty of Medicine and in close relation with the National School of Health. It is equipped with all means of examination and medical and surgical treatment, a library, an anatomic demonstration hall and a clinic with fifty beds. It will have other beds at its disposal in the Victoria Eugenia and the Valdelatas sanatoriums, making a total of one thousand beds, besides two dispensaries in Madrid and one in the university.

Although mainly dependent on the Ministry of the Interior, the school is also connected with the Ministry of National Education, since its activities are governed by a board of trustees on which are the ministers of the interior and of national education, the undersecretaries of those two departments, and the directors-general of health and university education. Several members of the school staff also belong to the Madrid faculty of medicine.

Forthcoming Congresses

At the end of October a fifth Spanish-American Congress on Diseases of the Digestive System and Nutrition will be held at Saragossa. The reports will deal with "The Chronic Enteropathies of the Small Intestine" (C. Jimenez Diaz), "The Hypophysio-Hypothalamic Influence on Carbohydrate Metabolism" (J. Andreu Urra), "The Problem of Chronic Appendicitis" (Dr. Pi Figueras) and "Thinness: Physiopathology" (G. Marañon).

Toward the middle of December there will be in Barcelona a second Spanish Congress on Cardiology, in which papers will be read on "Myocardial Infarct" (C. Lopez Brenes), "Acute Tachycardias" (A. Azpitarte) and "Endocarditis" (L. Trias de Bes).

These two congresses have been organized by the Spanish societies which deal with the respective problems involved, and it is announced that they will be attended by eminent foreign professors, especially Spanish-Americans.

New Professors

After a somewhat hectic competitive examination which had to be repeated three or four times, the chair of psychiatry at Madrid University has now been granted to Dr. A. Vallejo Najera, until now director of the Mental Hospital at Ciempozuelos and a colonel in the army medical corps. Dr. Vallejo Najera is the author of several books, including a "Manual of Psychiatry" which is now widely used among Spanish doctors.

Chairs of medical pathology have also been won recently by Dr. E. Ortiz de Landazuri (Cadiz) and Dr. L. Manuel y Pinies (Salamanca), who until recently was head of a department in the Basurto Hospital, Bilbao. The former has been transferred from the faculty of medicine at Granada. From both these young and enthusiastic men, much good work is expected in the field of teaching and research.

Correspondence

THE EFFECTS OF MINERAL OIL

To the Editor:—In the editorial, "The Effects of Mineral Oil," in THE JOURNAL of October 25, page 512, there is failure to note the physical-chemical effect of interface phenomena, the work of Irving Langmuir. This work of his, it will be recalled, led to the production of the now well known half molecular films. Langmuir called attention to the rearrangement of molecules as an interface phenomenon. Apart from seepage, which is more annoying than serious, I have felt that this molecular rearrangement was a large factor in preventing the proper absorption of food substances when mineral oil is taken over any length of time.

Some of the first experimental work was done by Dutcher, of State College, Pa., who was, I believe, the first to show experimentally that vitamin B is synthesized in the cow's rumen. More important was his experimental work on rats, in which he called attention to the slowly progressive loss of weight when mineral oil was administered to them over any length of time. In many of them a terminal diarrhea was induced.

My real interest, of course, lies in the work of Langmuir and in whether it is related to physiologic disturbances in those taking mineral oil over any length of time. I feel that the time factor is the crux of the situation.

WILLIAM EGBERT ROBERTSON, M.D., Philadelphia.

To the Editor:—The editorial, "The Effects of Mineral Oil," in the October 25 issue of THE JOURNAL, page 512, caused me to react with mixed emotions, the dominant one that of satisfaction and vindication.

In 1913, 1914 and 1915 Weighart, Von Oefele and I conducted many animal experiments with mineral oil. We fed them oil and later recovered it in appreciable quantities from the subcutaneous connective tissue and fat, proving that it was absorbed from the intestinal tract. That finding in addition to the resulting effect on the sulfur metabolism, we felt might favor the growth of cancers.

I read an abstract of our work at the summer meeting of the American Pharmaceutical Association at Atlantic City, N. J., in 1916. They never published the paper in their journal. In my opinion, prescribing mineral oil for constipation not only is stupid therapy but also could be dangerous.

ROBERT F. MCDONALD, M.D., Brooklyn.

RECTAL COMPLICATIONS OF EPISIOTOMY

To the Editor:—With regard to the article on Rectal Complications of Episiotomy, by Marbury and Goldman, in THE JOURNAL, August 2, page 1174, and the subsequent comment by W. R. Nicholson, M.D. (September 27, p. 245), there are several points that might be emphasized, as far as the old median episiotomy is concerned.

From an anatomic point of view the midline episiotomy is the procedure of choice, since the median raphe runs from the rectum to the posterior fourchette, and most of the nerves are small terminal fibers. When healing takes place there is a smooth painless scar in contrast to the scar of the lateral episiotomy, which is often bumpy and more often the source of a painful perineum because of the contraction of the scar tissue about the nerves.

When the decision to perform an episiotomy is made, it is advantageous to permit the perineum to dilate a bit before doing it; hence, the distance between the anus and perineum is not 1½ inches (3.8 cm.) but may be 2 to 3 inches (5 to 8 cm.), so that there is a greater margin of safety. Since many obstetricians routinely perform an episiotomy on primiparous women, it is of definite benefit to permit them to stretch a bit, else with the next child they are again primiparous, as far as the outlet is concerned.

But the greatest factor in influencing my decision to use the midline episiotomy without too much apprehension concerning rectal complications is the surgical repair of a rectocele, which universally is a midline repair. In this repair the surgeon is dealing with torn and atonic muscle, and with fascia which is almost nonexistent; with a reasonable amount of care he encounters few rectal complications. The obstetrician has good muscle, good fascia and with a knowledge of anatomy should be able to make a better repair.

If the obstetrician inserts a finger in the rectum at the end of the procedure and as suggested cuts the stitch, the complications will be far less severe than the tear resulting from the lateral episiotomy, which tears into the broad ligament.

The reasons for most tears with or without an episiotomy is twofold. First, the head is permitted to come out with the pain. The uterine contraction and its consequent pressure has the effect of putting the vaginal outlet on the stretch, and the stretched tissues are torn by the head. If the head is held back manually until the pain has gone or the woman is anesthetized, it can easily be expressed by a Ritgen maneuver. Similarly, instead of trying to pull the head out with the forceps on, in many cases it is possible to pull it down just far enough to permit the operator to grasp the chin through the perineum and remove the forceps, which add up to an additional 2 inches (5 cm.) in circumference; with this decrease in circumference it is often possible to avoid tearing or extending the midline or other type of episiotomy. The old adage, "Deliver between pains" might be amended to read, "But not between forceps."

EDWIN MATLIN, M.D., Mount Holly Springs, Pa.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL Nov. 15, page 733.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Part III.* New Haven, Jan. 7-9; New York, Jan.; San Francisco, Dec. 16-18; Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, May or June. Final date for filing application is Feb. 1. Sec., Dr. W. J. German, 310 Cedar St., New Haven, Conn.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Part I.* April-May. Applications are accepted for the next examination until Jan. 15, 1948. Sec., Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Chicago, June 16-19. Final date for filing application is Feb. 1. Sec., Dr. D. M. Lierle, University Hospitals, Iowa City.

AMERICAN BOARD OF PEDIATRICS: Dallas, Dec. 5-7. Philadelphia, Jan. 9-11. Sec., Dr. Lee F. Hill, 718 Royal Union Bldg., Des Moines 9.

AMERICAN BOARD OF PLASTIC SURGERY Examinations are given in April and November of each year in the home town of applicants. Sec., Dr. Robert H. Ivy, 1930 Chestnut St., Philadelphia.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: *Oral.* May 1948. Final date for filing application is Feb. 15. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: *Oral.* Chicago, June 1948. Final date for filing application is March 1. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various Centers, March. Final date for filing application is Dec. 1. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia 2.

AMERICAN BOARD OF UROLOGY. *Written,* Various Centers, Dec. 6. Final date for filing application is Nov. 15. *Oral Clinical.* Chicago, Feb. 14-18. Final date for filing application is Nov. 15. Sec., Dr. Harry Culver, R. 713, Sunnyside Road, Minneapolis 4.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Practicing Religious Tenets as Exception from Requirements of Act.—The defendant was found guilty of the unlawful practice of medicine, so he filed a motion to set aside the jury's verdict. The motion was heard in the Kings County Court, New York.

The defendant was charged with the unlawful practice of medicine in that he held himself out as being able to diagnose, treat, operate or prescribe for a human disease, pain, injury, deformity or physical condition of certain persons named in the indictment and that he offered to and undertook to treat such persons for various human diseases, pains, injuries, deformities or physical conditions. The People's case consisted of the testimony of special investigators, who testified to several visits made by them to the defendant's offices, at which time they were asked to disrobe and don a white gown which opened in the back; that the defendant made an examination of their persons and made certain diagnoses, namely, curvature of the spine, causing a pressure of the nerve in the sacroiliac; kyphosis of the back; constipated condition due to certain foods, and prescribed a diet to relieve this condition; prescribing yarrow and horehound to relieve a cold and slippery elm tablets to relieve a cold and sore throat. They also testified that defendant pressed and prodded with his hands along the back and spine of the witnesses and that he used a heating lamp, violet ray lamp and electric vibrator. One of the witnesses testified to making two visits to the defendant's premises, at which time he examined her "like a doctor," placed his hands on her stomach, back and other parts of the body and gave her a massage.

The defendant contended that he was entitled to the exemption provided by section 1262 subdivision 1 (8) of the Education Law in that he was practicing the religious tenets of his church. He claimed to be a Doctor of Divinity by reason of a certificate issued by Union College in Illinois in 1944 and a certificate of Doctor of the Divine Metaphysics received from the Church of Divine Metaphysics in 1944. He also claimed to be a Minister of the Lutheran Church, having been duly ordained as such by the American Council of Churches in Chicago. He argued that all he did to the People's witnesses was to lay his hands on that portion of the body where the witness complained of pain and ask the witness to pray in silence while he did the same, thus to bring about relief. The defendant further admitted that he was a graduate of the Philadelphia College of Pharmacy in 1908; that he took a four year course in the New Jersey College of Osteopathy, a postgraduate course at the American School of Chiropractic, a two year course in physiotherapy at the Metropolitan School of Physiotherapy and a postgraduate course in physiotherapy at the same school; that for one year he attended Jefferson Medical College and that he was licensed by the State of Vermont as a chiropractic physician.

Under our form of government, said the court, all are entitled to worship their God in their own manner. But one claiming the exemption provided by law must prove that claim. The issue in such a claim is one of legitimacy. Is the defendant practicing a religion in good faith? Does he have a congregation or church? Does he administer only prayer and refrain from the use of physical means? Does he prescribe medicine or diets? Does he undertake examinations and give physical treatments? These issues determine his exemption from the statute. In a prior New York case it was held that the religious tenets of a church must be practiced in good faith to come within the exception. A person should not be allowed to assume to practice the tenets of any church as a shield to cover a business undertaking. The profession and practice of religion must be itself the cure. This prosecution, continued the court, is not a prosecution against religion, but rather a prosecution against a faker or a quack who claims the cloak of religion to hide his illegitimate practices.

It must not be forgotten, the court concluded, that this defendant had three witnesses for the plaintiff disrobe and that he placed his hands on their naked body. Surely, by no stretch of the imagination can it be urged that, in order to cure a person of any ailment by means of prayer, it becomes necessary for the person to disrobe. One witness was requested to remove her corset because, as the defendant put it, his magnetic power could not penetrate through the corset. This, said the court, is only one instance of revealing the sham and falsity of the defendant's claim to practicing the religious tenets of his church in bringing about divine healing by means of prayer.

Accordingly the defendant's motion to set aside the verdict of the jury was denied and the conviction was sustained.—*People v. Wendel, 68 N. Y. S. (2d) 267 (New York, 1946).*

Physical Examination: Scope of Examination Which Court May Require.—In an action against the University of Rochester the defendant made a motion to require the plaintiff to submit to certain physical examinations. The motion was heard in the Supreme Court, Monroe County, New York.

The plaintiff was asked to submit to an x-ray examination, a urinalysis, a gastric analysis, a blood examination by venous puncture and "a bone marrow biopsy." In support of its motion the defendant submitted the affidavit of a skilled and specially trained physician, who stated, among other things, that the bone marrow biopsy involves making a small incision in the skin over the sternum and removing a small amount of bone marrow. He also stated that the "bone marrow" procedure is "standard" and is "commonly done in the diagnosis of certain diseases and injuries and will cause no unusual pain or suffering to the plaintiff and will result in no permanent injury or damage of any kind to him." In opposition, the plaintiff did not submit the opinion or affidavit of a physician, or of any medical authority, but contented himself with the assertion that these tests will, "as defendant is advised, other than the x-ray test, cause this plaintiff to submit to pain and suffering." By whom he has been so advised, said the court, whether doctor, merchant, lawyer or chief, does not appear. This "advice" may have come from some one who is in a position to know or from some one having no knowledge thereof whatsoever. We are not told.

In the original hearing (April 9, 1946) the court entered an order requiring the plaintiff to submit to all but the bone marrow test. In this operational procedure, bone marrow biopsy, ("biopsy" is defined as "the examination of tissues, normal or morbid, excised from the living body") an incision is required. This, the physician stated, will result in "no unusual pain or suffering" and will result in no "permanent" injury or damage. "The conclusion to be drawn," said the court, "therefore, is that there will be some pain and suffering, though not unusual, and some injury or damage, though not permanent, following the incision and tissue removal. Such a procedure, or type of examination, we do not believe has as yet been authorized or countenanced, and the courts do not appear, as yet, to be willing to interpret the rule so as to permit such an invasion of a plaintiff's body. No New York case has been found or cited to us directly in point, but the rule elsewhere seems to frown upon such a physical examination as borders on or constitutes an 'operation,' as that word is commonly understood and used by laymen."

This ruling was subsequently appealed to the appellate division, fourth department (69 N. Y. S. (2d) 352), and the defendant was granted leave "to renew the motion for permission to perform a bone marrow biopsy upon other and sufficient papers showing the necessity for such examination, the details of the procedure employed in making it, the frequency with which it has been done, together with the experience and observations which have been made by physicians as to pain, harm or after results of any nature occurring to persons so examined."

In the present hearing (June 28, 1947) the court said that the defendant met the condition referred to in the decision of the appellate division and established by the papers submitted that the bone marrow biopsy is necessary, desirable and material; set forth the method of performing such an examination; showed that it is in quite general use, and showed that it results in practically no pain and in no harmful results. The plaintiff in his affidavit submitted in opposition did not materially controvert the assertions made by the defendant. Accordingly the motion in favor of the defendant and requiring the plaintiff to submit to a bone marrow biopsy was granted.—*Cardinal v. University of Rochester, 71 N. Y. S. (2d) 614 (N. Y., 1946); 71 N. Y. S. (2d) 617 (N. Y., 1947).*

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted.

American Journal of Diseases of Children, Chicago

74:121-264 (Aug.) 1947

*Asymmetric Spastic Infantile Cerebral Palsy: Clinical Study of Its Causation. J. McGovern and H. Yannet.—p. 121.
Epidemic of Diphtheria. W. A. Reilly.—p. 130.
Results of Treatment of Recurring Convulsive Attacks of Epilepsy. H. M. Keith.—p. 140.
Etiology of Mongolism: Epidemiologic and Teratologic Implications. T. H. Ingalls.—p. 147.
*Importance of Bronchial Rupture in Tuberculosis of Endothoracic Lymph Nodes. O. Görgényi-Göttche and D. Kassay.—p. 166.
Nature and Treatment of Stuttering. P. J. Glasner.—p. 218.

Asymmetric Spastic Infantile Cerebral Palsy.—McGovern and Yannet say that of 127 patients with spastic cerebral palsy admitted to the Southbury Training School 52 had diplegia, 7 paraplegia and 68 were asymmetrically involved. Sixty-seven cases of infantile spastic cerebral palsy with asymmetric neurologic involvement and mental defect are reviewed. The group in which a definite history compatible with the diagnosis of birth trauma was present was shown to differ in many respects from the undifferentiated group in which this history was absent. These differentiating factors included: (1) the high proportion of first born in the group that experienced birth trauma; (2) the advanced age of the mothers at the time of birth of the patients in the undifferentiated group; (3) the smaller average head size in the group which experienced birth trauma; (4) the increased incidence of prematurity in the undifferentiated group and (5) the tendency for hemiplegia in the undifferentiated group to involve the right side, while hemiplegia on the left side occurred in practically all cases of paralysis due to birth trauma as well as of postinfectious palsy. The data indicate that the undifferentiated group, which represented 54 per cent of the total number of cases of asymmetric spastic paralysis, have many features in common with the spastic diplegias and probably represent the result of prenatal conditions leading to developmental cerebral defects.

Bronchial Rupture in Tuberculosis of Endothoracic Lymph Nodes.—Görgényi-Göttche and Kassay point out that the literature on tuberculosis during the decade from 1920 to 1930 was greatly concerned with "infiltrations." The further development of this phase was greatly influenced by the work of Rössle, who found that the cause of atelectasis was in most cases the compression of enlarged tuberculous mediastinal lymph nodes. Of 33 cases studied by them with the aid of tomography, 4 were bronchial compression and 29 "infiltration" or atelectasis. Bronchoscopic examination was done in 28 cases. Eighteen of these showed bronchial rupture, and 3 showed only an encroachment of lymph nodes on the lumen of the main bronchus; in 7 bronchoscopic study revealed normal conditions. Roentgen examination is of great importance in the diagnosis of bronchial rupture. The Holzknecht-Jakobson sign is most valuable, for it indicates that on the side to which the mediastinal organs move during inspiration the main bronchus is severely stenosed. Among 15 patients in whom the Holzknecht-Jakobson sign was present, the authors found bronchial rupture in 14 instances. In 1 case an encroachment of the caseous lymph nodes on the bronchus was found. The Holzknecht-Jakobson sign is an indication for bronchoscopic examination. Since this is a harmless procedure, it ought to be performed in any case in which there is suspicion of bronchial rupture. It is useful in diagnosis and as a therapeutic procedure in removing the caseous masses from the bronchi. It is often of lifesaving importance.

American Journal of Medicine, New York

3:259-380 (Sept.) 1947

Penicillin Aerosol Therapy in Bronchiectasis, Lung Abscess and Chronic Bronchitis. Bettina Garthwaite and A. L. Barach.—p. 261.
Portable Unit for Aerosol Medication. H. V. Dwyer.—p. 294.
Therapeutic and Side Effects of Pyribenzamine and Benadryl: Comparative Study Based on Survey of 26 Clinical Reports in the Literature. Mary H. Loveless.—p. 296.
Evaluation of Dimethylaminoethyl Benzhydryl Ether Hydrochloride (Benadryl) in Bronchial Asthma. A. M. Fuchs, P. M. Schulman and T. H. McGavack.—p. 309.
*Diagnosis of Brill's Disease (American Form of European Typhus Fever) by Skin Biopsy. H. Mandelbaum and G. Hollander.—p. 315.
Virus Pneumonia. G. R. McCutchan.—p. 323.
Operative Treatment of Venous Thrombosis in Lower Limbs. J. Homans.—p. 345.

Diagnosis of Brill's Disease by Skin Biopsy.—According to Mandelbaum and Hollander, in the United States there seem to be three distinct types of rickettsial disease. Brill's disease (the American form of typhus fever) is found in the northeastern part of the country, murine (flea-borne) typhus occurs mainly in the southeastern part of the United States, while Rocky Mountain spotted fever (mite-borne) occurs throughout all parts of the country. The pathologic changes caused by Rickettsiae are similar. These characteristic vascular changes consist of vasculitis and perivasculitis. If carefully looked for, rickettsias may be found in the endothelial cells lining the blood vessels. The vessels usually affected are the smaller ones of the brain, lungs, skin and heart. Because of the difficulties in carrying out specific complement fixation and agglutination tests for rickettsias, a simple method of early diagnosis by skin biopsy is described. A well developed lesion, preferably of a macular type, is excised with ample underlying tissue. It is fixed in Regaud's fluid and stained using the usual Giemsa method. An experienced pathologist can easily recognize the characteristic lesions even in the absence of the rickettsial bodies. In classic typhus, Brill's disease and murine typhus rickettsias may be found in the endothelial cells lining the blood vessels. Even in the absence of the organism the proliferative endangiitis is diagnostic. In Rocky Mountain spotted fever rickettsias seldom will be seen in the smoother muscle cells of the arterial walls. The authors present histories of 2 patients with Brill's disease with characteristic clinical and pathologic changes in the skin. The rickettsial organisms were identified in 1 subject.

American Journal of Ophthalmology, Cincinnati

30:1063-1204 (Sept.) 1947

Cyclodialysis, Multiple or Single, With Air Injection: Operative Technic for Chronic Glaucoma. O. Barkan.—p. 1063.
Ophthalmology During War and in the Future. S. Duke-Elder.—p. 1073.
New York as Ophthalmological Center. B. Samuels.—p. 1081.
*Dicumarol and Rutin in Retinal Vascular Disorders. A. L. MacLean and C. E. Brambel.—p. 1093.
Recession of Limbal Conjunctiva: Operation for Treatment of Trachomatous Pannus. M. Lombardo.—p. 1109.
Orthoptic Treatment of the Vertical Motor Anomalies. Mary E. Kramer.—p. 1113.
*Preservation of Corneal Tissue by Freezing and Dehydration. H. M. Katzin.—p. 1128.
Experimental Studies in Retrobulbar Neuritis. P. J. Leinfelder and W. A. Robbie.—p. 1135.
Nonperforating Ocular Injuries in Soldiers. B. Rones and Helenor C. Wilder.—p. 1143.
Observations on Surgical Treatment of Extraocular Muscles. A. DeH. Prangen.—p. 1161.

"Dicumarol" and Rutin in Retinal Vascular Disorders.—MacLean and Brambel review observations on 21 patients with vascular retinopathies. The 2 patients with Eales' disease (recurrent hemorrhages into the retina and vitreous) were treated only with rutin, but all other patients received "dicumarol" for from four to forty weeks. Two patients with tributary thrombosis were given only "dicumarol," but the others were subjected to concomitant administration of rutin and "dicumarol." Detailed ophthalmoscopic examinations were made periodically during the course of treatment with the two drugs. Since the rate of absorption of blood extravasations in these patients was greater and more rapid than could have been observed if treatment had not been given, the authors conclude that "dicumarol" and rutin possess therapeutic value in venous thrombosis and the absorption of retinal hemorrhages. They

stress that long term administration of "dicumarol" has been used efficaciously in central and tributary retinal occlusion, diabetic, degenerative and central serous retinopathies. Rutin has been found to decrease capillary fragility and has been used with benefit in recurrent retinal and vitreous hemorrhage. An increased clotting tendency has been observed in all the cases of vascular retinopathies. Improvement in visual acuity has been accomplished in this series by maintaining the prothrombin activity between 50 and 60 per cent of normal up to a period of six months or more. The results warrant further clinical evaluation of "dicumarol" and rutin in ophthalmology.

Preservation of Corneal Tissue by Freezing and Dehydration.—Publications by Weiss and Taylor on the transplantation of frozen, dried corneas in the rat suggested to Katzin that if the human cornea could be preserved in such a manner it would be a great boom to the ophthalmic surgeon, who could then have his graft material available at any time. Katzin describes his experiences with a freezing, dehydrating apparatus similar to that of Taylor. His attempts to preserve rabbit corneas for transplantation by rapid freezing at the temperature of liquid nitrogen and dehydrating in vacuo at minus 40 C. have failed to produce a transparent graft. Corneal grafts took and healed in place but did not remain clear. Various modifications in technic were employed without significant effect on the result, since no graft remained clear.

American Journal of Physiology, Baltimore

150:229-372 (Aug.) 1947. **Partial Index**

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Influence of Adrenalin on Blood Sugar and Resistance to Hypoxia in Nembutalized Cat. R. H. Oster and D. C. Smith.—p. 321.
*Effect of Environmental Temperature on Food Selection. S. Donhoffer and J. Vonotzky.—p. 329.
*Effect of Thyroxine on Food Intake and Selection. S. Donhoffer and J. Vonotzky.—p. 334.
Recovery of Pressor Principle from Blood Plasma of Cats Given Kidney Extracts. O. M. Helmer and R. E. Shipley.—p. 353.
Carotid-Mandibular Reflex in Acute Respiratory Failure. R. D. Tschirgi and R. W. Gerard.—p. 358.
Local Sweat Gland Activity Due to Direct Effects of Radiant Heat. W. C. Randall.—p. 365.

Effect of Environmental Temperature on Food Selection.—The experiments described by Donhoffer and Vonotzky were devised to investigate whether the self selected amount of energy-producing foodstuffs, carbohydrate, protein and fat, could be altered by a change in environmental temperature. In every experiment three or four groups of 10 mice were used, of which two groups always served as controls. The animals were allowed the choice of three food mixtures. Each contained one-third part of a standard mixture and two-thirds of starch, casein or lard. All these diets when given alone provided adequate nourishment and maintained health. After a preliminary period of two to three weeks at room temperature, the experimental groups were placed in an environment thermostatically controlled to from 29 to 33 C. (84 to 88 F.) or in a refrigerator where the temperature was 10 to 11 C. (50 to 52 F.). It was found that food consumption increased in mice at low and decreased at high temperatures. These changes were due almost exclusively to an increase or decrease in the intake of the carbohydrate-rich food.

Thyroxine and Food Selection.—White mice were given daily from 0.02 to 0.04 mg. of thyroxine. It was found that prolonged administration of thyroxine considerably increased the dietary intake of white mice. The increase in the intake of food followed the rise of oxygen consumption after a lag of some days and persisted for a similar period after the fall in the rate of metabolism. The additional calories ingested during the effect of thyroxine were furnished, free selection provided, mainly and in many cases entirely by consumption of starchy food. At the height of the thyroxine effect this often provided 80 per cent of the calories, while in untreated animals 70 to 80 per cent were furnished by the selection of a food rich in fat.

American Journal of Surgery, New York

74:231-382 (Sept.) 1947

Survey of Traumatic Surgery. J. J. Moorhead.—p. 233.
Caution in Handling Extensively Injured. R. H. Kennedy.—p. 241.
Roentgenology of Spine in Industry. A. B. Ferguson.—p. 246.
Back Injuries in Industry. J. D. Adams and G. K. Coonse.—p. 258.
Operative Indications in Trauma to Low Back. P. D. Wilson and L. R. Straub.—p. 270.
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American Journal of Tropical Medicine, Baltimore

27:417-524 (July) 1947

Epidemiology of Schistosomiasis Japonica in Philippine Islands and Japan: III. Surveys of Endemic Areas of Schistosomiasis Japonica in Japan. W. H. Wright, D. B. McMullen, H. J. Bennett, P. M. Bauman and J. W. Ingalls Jr.—p. 417.
Block Residual Spraying of Premises with DDT for Control of Malaria. E. H. Hinman and L. K. Cutkomp.—p. 449.
Observations on Laboratory Care, Life Cycle, and Hosts of Chicken Mite, Dermanyssus Gallinae. C. L. Wisseman Jr. and S. E. Sulkin.—p. 463.
Studies on Cyclic Passage of Yellow Fever Virus in South American Mammals and Mosquitoes: III. Further Observations on Haemagogus Equinus As a Vector of the Virus. M. B. Waddell and R. M. Taylor. —p. 471.
*Psychotic Reactions to Ingestion of Large Doses of Quinacrine in Normal Subjects. S. W. Hoobler.—p. 477.
Lymph Node in Tropical Diseases. J. E. Ash.—p. 483.
Effectiveness of Metachloridine in Suppressing Natural Infections with Plasmodium Malariae and P. Falciparum in British Guiana. M. Kenney and S. Brackett.—p. 493.
Further Note on Classification of Vibrios of the 1945 Cholera Epidemic in Chungking. H. A. Reimann.—p. 503.
Present Status of Hookworm Infection in Florida. Marion Hood. —p. 505.

Psychiatric Reactions Following Large Doses of Quinacrine.—According to Hoobler psychic disturbances following the treatment of malaria with quinacrine have been reported by a number of authors. In such instances it has usually been impossible to exclude the malaria itself or some hypothetic toxic substance resulting from the rapid destruction of a large number of parasites by quinacrine as the cause of the mental disturbance. It was therefore decided to investigate the effect of this agent on nonmalarial subjects. In 24 of 31 officers who were taking for the first time doses of quinacrine moderately in excess of those used in routine antimalarial therapy there developed toxic central nervous system symptoms varying from mild insomnia and depression to severe psychotic reactions in 3 instances. Since malaria was definitely excluded in every instance and the reaction subsided promptly on discontinuation of the drug, quinacrine alone could be definitely implicated as the cause of the psychic reactions encountered.

American Review of Tuberculosis, New York

56:1-74 (July) 1947

Auscultation: New Appraisal. F. M. Pottenger.—p. 1.
Health Card and the Abreu Method: Use in Asuncion, Paraguay. A. R. Gines.—p. 13.
British Columbia's Welfare Program for the Tuberculous. Helen M. Sutherland.—p. 18.
Pulmonary Tuberculosis in Chinese Students. J. C. Tao.—p. 22.
*Inhibition of Primary Tuberculosis by BCG: Study in Children, Based on 13,470 Chest Roentgenograms. I. S. Neiman and E. Loewinsohn. —p. 27.
Morphology of the Mycobacterium Tuberculosis: Study of Artifacts Produced in Smears. D. Yegian and J. Kurung.—p. 36.
Streptothricin in Experimental Tuberculosis: Its in Vivo Activity and Toxicity for Guinea Pigs and Hamsters Infected with Mycobacterium Tuberculosis. W. Steenken Jr. and P. F. Wagley.—p. 41.
Effect of Streptothricin on Mycobacteria: Study of Its in Vitro Activity and Comparison with Activity of Tyrothricin, 4,4'-Diaminodiphenylsulfone, Diasone and Promin. P. F. Wagley and W. Steenken Jr. —p. 46.
Effect of Thyroid on Experimental Tuberculosis. R. A. Izzo and V. H. Cicardo.—p. 52.
Acid-Permanganate Mixture for Cleaning Glassware Contaminated with Tubercle Bacilli. H. Goldie.—p. 59.

Inhibition of Primary Tuberculosis by BCG Vaccine.—Neiman and Loewinsohn have made 13,470 chest roentgenograms on a group of 1,417 children vaccinated with BCG and a similar group of 1,414 children reserved as controls, all of whom were observed from birth. Analysis of the films revealed a significantly higher incidence of primary tuberculosis, as evidenced by pulmonary abnormalities usually considered tuberculous, in the nonvaccinated children. The results suggest that vaccination with BCG tends to reduce the incidence of primary tuberculosis and that BCG may be used as an adjunct to the tuberculosis control programs aimed at discovery and isolation of source cases.

Annals of Internal Medicine, Lancaster, Pa.

27:195-346 (Aug.) 1947

Responsibilities of the Internist. D. P. Barr.—p. 195.
Chronic Liver Disease Following Infectious Hepatitis: I. Abnormal Convalescence From Initial Attack. H. G. Kunkel, D. H. Labby and C. L. Hoagland.—p. 202.
Arterialization of Internal Jugular Blood During Hyperventilation as Aid in Diagnosis of Intracranial Vascular Tumors. Myrtle Logan, E. B. Ferris, G. L. Engel and J. P. Evans.—p. 220.
*Penicillin in Treatment of Early Syphilis, 429 Patients Treated with 1,200,000 Units in Ninety Hours. R. M. Craig and others.—p. 225.
*Use of BAL (2,3-Dimercaptopropanol) in Treatment of Agranulocytosis Following Intensive Arsenotherapy for Syphilis. H. L. Holley. —p. 231.
Prognosis of Wolff-Parkinson-White Syndrome. J. L. Kimball and G. Burch.—p. 239.
Bronchogenic Carcinoma—Clinical Pathologic Study of 36 Autopsied Cases Seen at Brooklyn Cancer Institute Between 1937 and 1945, Inclusive. W. A. Henkin.—p. 243.
Psychosomatic Aspects of Cardiac Arrhythmias: Physiologic Dynamic Approach. L. N. Katz, S. S. Winton and R. S. Megibow.—p. 261.
Primary Atypical Pneumonia. F. L. Horsfall Jr.—p. 275.
Genesis of Neuroses. S. B. Hadden.—p. 282.

Penicillin in Treatment of Early Syphilis.—Craig and his co-workers treated 429 patients (249 male and 180 female) between the ages of 4 and 56 years who had dark field-positive lesions of primary or early secondary syphilis with penicillin. Each patient received 40,000 Oxford units of sodium penicillin intramuscularly every three hours for thirty doses over a period of three and three-quarter days (1,200,000 units as total dose). Sixty-two of the 429 patients had received previous treatment for syphilis, while 367 patients had never been treated previously for syphilis. Three hundred and eighty-two of the patients had been seropositive before treatment. Two hundred and thirty (60.5 per cent) achieved seronegativity after treatment. Eighty-five patient (19.8 per cent) were considered failures at the end of fifteen months' observation. This schedule of treatment was considerably more effective than either small amounts of penicillin combined with arsenicals administered to 107 patients, 34 of whom were failures (31.8 per cent), or half as much penicillin (600,000 units) over twice the length of time given to 339 patients, 97 of whom were failures (28.6 per cent).

BAL in Treatment of Agranulocytosis.—Holley treated 12 patients (2 men and 10 women) between the ages of 15 and 39 years who had agranulocytosis incurred during arsenotherapy for syphilis with BAL (2,3-dimercaptopropanol). The substance was given in 1.5 cc. (10 per cent solution) doses every six hours for forty-eight hours, then 2 cc. daily for six doses. There were no deaths. The majority of the patients received conventional supportive treatment. It was not feasible to carry on a control series of patients with the same disease but receiving no BAL. Thus clinical evaluation of the efficiency of the drug was difficult, but the results obtained suggest that 2,3-dimercaptopropanol administered early and in proper dosage may contribute to and accelerate the recovery of patients with agranulocytosis caused by parenteral administration of arsenical drugs. This may be explained by the fact that BAL through its selective affinity for the suppressing agent may decrease the time that is required for the bone marrow to return to its normal function.

Archives of Internal Medicine, Chicago

80:147-292 (Aug.) 1947

Osteoporosis Associated with Low Serum Phosphorus and Renal Glycosuria. W. T. Cooke, J. A. Barclay, A. D. T. Govan and L. Nagley. —p. 147.
Early Amyloid Nephrosis in Complicated Traumas of the Bone Sustained During War. S. D. Reiselman.—p. 165.
*Excretion of Urobilinogen in Urine in Infectious Hepatitis: Serial Studies. H. A. Lindberg and G. V. LeRoy.—p. 175.
Pneumonia Associated with Varicella: Review of Literature and Report of Fatal Case with Autopsy. W. D. Claudy.—p. 185.
Concentration Test of Renal Function Using Posterior Pituitary Injection: An Evaluation. N. G. Schneeberg.—p. 193.
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*Recent Myocardial Infarction: Analysis of 572 Cases. S. S. Mintz and L. N. Katz.—p. 205.
Cardiac Output in Man: Analysis of Mechanisms Varying the Cardiac Output Based on Recent Clinical Studies. E. A. Stead Jr. and J. V. Warren.—p. 237.
Sarcoidosis in Siblings. R. C. V. Robinson and R. D. Hahn.—p. 249.
*Hepatitis Without Jaundice in Infectious Mononucleosis. Q. B. DeMarsh and H. L. Alt.—p. 257.
Aortic Stenosis with Elevated Metabolic Rate Simulating Hyperthyroidism. J. A. Smith and S. A. Levine.—p. 265.
Treatment of Allergy to Insulin with Diphenhydramine Hydrochloride: Report of 2 Cases. M. D. Leavitt and C. F. Gastineau.—p. 271.

Excretion of Urobilinogen in Infectious Hepatitis.—Lindberg and LeRoy made a variety of sensitive tests of hepatic function on 120 patients with acute infectious hepatitis. The patients were studied during the height of the disease and well into the convalescent period. The quantitative method for determining the excretion of urobilinogen in the urine was found to be the most valuable. It was the test least likely to give normal results while jaundice was present and most likely to give abnormal results after jaundice had subsided. Because of the simplicity of the test, serial studies of quantitative excretion of urobilinogen in the urine should be made at least every other day during the convalescent period of a patient with infectious hepatitis and should be interpreted with regard to this particular patient. Because of the wide fluctuations of excretion of urobilinogen in the urine during convalescence, a spot check may be misleading and normal values will be falsely interpreted.

Recent Myocardial Infarction.—Mintz and Katz review 572 cases of recent myocardial infarction observed at the Michael Reese Hospital in Chicago. Acute myocardial infarction occurs less frequently in women than in men. In women the infarction occurs, on the average, four years later than in men. Women have a greater immediate mortality rate than men. This appears to be due to the greater incidence of diabetes mellitus, thromboembolic phenomena and arrhythmias in women than in men and to their older age at the time of the attack. Hypertension occurred in 35.9 per cent of this series. The incidence increased with age, especially in women. Hypertension appears to have no influence on the immediate prognosis of acute myocardial infarction, but diabetes mellitus adds gravity to the immediate prognosis, especially in women. Angina pectoris has no significant effect on the immediate prognosis. The persistence of anginal pain after the acute phase of the attack makes the immediate prognosis more grave. The hypertensive group had a greater drop in blood pressure than the normotensive group following the appearance of the acute infarct. The pulse pressure fell in all groups. Pulse pressures of 25 mm. of mercury or less are of grave prognostic

significance. The immediate mortality rate in patients with acute myocardial infarction was greatest in those who had infarcts involving the septum and in those with the atypical and combined varieties. Cardiac arrhythmias occur in both sexes. The immediate prognosis is grave in both sexes but particularly so in women. Quinidine and/or digitalis therapy for arrhythmias in acute myocardial infarction is not without hazard, the mortality rate being greater than with the arrhythmia alone. Congestive heart failure is an extremely grave prognostic sign in both sexes, especially in men. Administration of digitalis to patients who have congestive heart failure complicating acute myocardial infarction may be harmful. Thromboembolic phenomena occurring during recent myocardial infarction even when digitalis is not given are of grave prognostic significance.

Hepatitis Without Jaundice in Infectious Mononucleosis.—DeMarsh and Alt found that in 19 consecutive cases of infectious mononucleosis without jaundice varying degrees of hepatic dysfunction were present. This was shown by serial cephalin cholesterol flocculation and sulfobromophthalein excretion tests. The duration of hepatic involvement ranged from two weeks to five months. Enlargement and tenderness of the liver were common physical observations.

Archives of Otolaryngology, Chicago

46:125-268 (Aug.) 1947

*Management of Respiratory Complications of Poliomyelitis. T. C. Galloway.—p. 125.
Chronic Purulent Otitis Media. M. M. Cullom.—p. 137.
Brief History of Otolaryngology in U. S. from 1847 to 1947. R. A. Fenton.—p. 153.
Neurogenic Tumors of Nose and Throat. G. B. New and K. D. Devine.—p. 163.
Tumors Involving Petrous Pyramid of Temporal Bone. B. Proctor and J. R. Lindsay.—p. 180.
Malignant Melanoma of Nasal Mucosa. C. C. Grace.—p. 195.
Eustachian Tube. G. E. Tremble.—p. 211.
Experimental Insomnia and Auditory Acuity. V. Goodhill and D. B. Tyler.—p. 221.
Magnetic Removal of Foreign Bodies from Food and Air Passages. M. Equen.—p. 225.
Tonsils and Adenoids. J. D. Singleton.—p. 244.

Respiratory Complications of Poliomyelitis.—Galloway differentiates three types of respiratory complications of poliomyelitis: (1) those due to spinal paralysis involving the diaphragm or intercostal muscles or both; (2) those due to bulbar paralysis involving the mechanism of deglutition, and (3) those due to disturbances of the respiratory center. Anoxia due to accumulated secretion is a most important factor in bulbar poliomyelitis. Early and adequate care, administration of oxygen, proper postural drainage and aspiration will often suffice for recovery. Tracheotomy may become necessary if anoxia increases. Galloway lists the following indications for tracheotomy: (1) fluid in the upper airway, with signs of anoxia increasing in spite of the administration of oxygen, postural drainage and aspiration; (2) unconsciousness or restlessness in a patient not previously treated and not responding to other treatment in a few minutes; (3) restlessness or stupor in a patient in a respirator even if he apparently has a spinal type of poliomyelitis; (4) fluid accumulation not otherwise easily taken care of in a patient requiring the respirator; (5) rapidly progressive bulbar symptoms; (6) bilateral paralysis or spasm of the vocal cords; (7) increasing signs of vasomotor failure not explained as due to a cause other than anoxia, and (8) untrained or inefficient attendants, inadequate equipment or poor cooperation of the patient, with doubt that the airway will be kept constantly free of secretion.

Arkansas Medical Society Journal, Fort Smith

44:69-90 (Aug.) 1947

Present Day Treatment of Diabetes in Prevention of Degenerative Complications. A. Marble.—p. 69.
Medicine and Civilization. L. W. Jones.—p. 73.

44:91-110 (Sept.) 1947

Role of Private Psychiatric Hospital in Treatment of Alcohol Addicts. R. C. Young.—p. 91.
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Problem of Neurosis. J. Verser.—p. 95.

Blood, New York

2:407-504 (Sept.) 1947

*Erythropoietic Activity of Choline Chloride in Megaloblastic Anemias. L. J. Davis and A. Brown.—p. 407.
*Successful Treatment of Liver-Refractory Anemia with Synthetic Lactobacillus Casei Factor. J. Waldenström.—p. 426.
Action of Pteroyl Glutamic Acid and Natural Sources of Folic Acid on Blood Dyscrasias Induced by Sulfonamide Drugs. H. G. Petering, R. A. Delor and H. C. Murray.—p. 440.
Hematopoiesis in Pantothenic Acid-Deficient Rats. L. L. Ashburn, F. S. Daft and R. R. Faulkner.—p. 451.
Use of Photoelectric Turbidometry in Determination of Red Cell Counts, Hematocrits and Hemoglobin. J. H. Whitlock.—p. 463.
Correlation Study on White Blood Cells. J. M. Pines.—p. 474.

Choline Chloride in Megaloblastic Anemia.—Davis and Brown treated 10 women with megaloblastic anemia of various types who were between the ages of 16 and 71 years with choline chloride. The daily dosage varied from 3 to 10 Gm. when given orally and from 1 to 10 Gm. when given intravenously. Side effects did not accompany the oral administration, but high dosage intravenous therapy had to be discontinued after three or four days on account of severe untoward reactions such as tachycardia, nausea, and vomiting. The most satisfactory method of administering choline consists of intravenous injections in daily doses of 1 Gm. Choline was ineffective in 1 case of untreated addisonian pernicious anemia which subsequently responded to parenteral liver therapy. Choline was also without effect in 1 case of nutritional megaloblastic anemia of pregnancy and in 2 cases of megaloblastic anemia associated with the sprue syndrome. In all these cases the anemia had proved refractory to injections of potent liver extract before the choline was given, and all patients responded to subsequent oral liver or folic acid therapy. A significant erythropoietic response to choline occurred in 2 cases resembling addisonian pernicious anemia which were refractory to parenteral liver extracts; this refractoriness may have resulted from hepatic dysfunction. Secondary responses followed the administration of choline in 2 other cases of addisonian pernicious anemia and in a case of megaloblastic anemia of pregnancy, all of which had already responded to injections of liver extract. It is concluded that choline possesses no direct erythropoietic activity but that under certain circumstances it may potentiate the effect of liver extracts. It seems unlikely that choline will be of practical value in the treatment of refractory megaloblastic anemias for which oral liver preparations provide the most certain and effective treatment, but it is possible that choline may be of use in cases complicated by severe hepatic disease.

Lactobacillus Casei Factor in Liver-Refractory Anemia.—Waldenström treated 3 women between the ages of 42 and 57 with liver-refractory macrocytic anemia with folic acid by mouth. The first case was one of nontropical sprue with atrophy of the spleen and megaloblastic anemia which became completely refractory to liver therapy. The second patient was successfully treated with liver extracts for twelve years and suddenly became refractory with severe leukopenia. The third case should probably be classified as idiopathic steatorrhea. All 3 patients reacted well to folic acid. The disease of a fourth woman, aged 61, approximated typical pernicious anemia more closely, as a histamine-fast achlorhydria was observed. This patient was given 25 mg. folic acid daily and she reacted well. The fifth case reported was a typical instance of idiopathic steatorrhea with probable atrophy of the spleen in a woman aged 41. She had a moderate anemia that was refractory to liver extracts. Folic acid perorally and intramuscularly influenced neither the anemia nor the fecal fat. In a series of 15 cases of uncomplicated pernicious anemia in relapse, the immediate response to folic acid in doses of 20 to 30 mg. daily was good. Full remissions as regards hemoglobin and erythrocytes could be expected with a total dosage of 400 to 600 mg. It is suggested that folic acid and liver extract may probably have different mechanisms of action since certain cases of pernicious anemia refractory to liver extract do respond to folic acid.

Connecticut State Medical Journal, Hartford

11:715-802 (Sept.) 1947

Study of Sterility. W. W. Williams.—p. 722.
Controversial Aspects of Surgical Treatment of Peptic Ulcer. C. S. Welch.—p. 730.
Polypoid Cecal Masses Produced by Invaginated Appendiceal Stumps. R. M. Lowman and A. J. Mendillo.—p. 736.
*Hepato-Biliary Infection Following Administration of Priodax. C. H. Pitegoff.—p. 739.
Management of Cancer of the Cervix Uteri. L. G. Simon.—p. 741.
Connecticut Commission on Alcoholism. S. D. Bacon and D. P. Miller. —p. 742.
Libel Suits of the American Medical Association. M. Fishbein.—p. 747.

Hepatobiliary Infection Following Administration of "Priodax."—Pitegoff reports the case of a man, aged 40, who while convalescing from a pneumonic infection, complained of pain in the right upper quadrant which he had noted for one year prior to admission. Roentgenologic studies of the gallbladder were done. The first administration of iodoalphionic acid ("priodax") tablets was followed in two and one half hours by severe back pain, which responded to 50 mg. of meperidine hydrochloride ("demerol hydrochloride"). The gallbladder failed to visualize. Twenty-four hours later a repeat dose of the contrast medium was given, followed in fifteen minutes by severe pain in the right upper quadrant which failed to respond to medicaments. This was followed within twelve hours by signs of acute infection in the right upper quadrant of the abdomen. Both penicillin and streptomycin were administered, the latter because pure Escherichia coli were detected in the bile-stained vomitus. The clinical course was extremely stormy for five days, but improvement appeared to have set in about forty-eight hours after the onset of streptomycin therapy. The patient was discharged after being afebrile for one week. The authors are unable to explain the mechanism of cause and effect in this case, but suggest that "priodax" may have precipitated an acute exacerbation of a latent or chronic cholecystitis. Streptomycin may have played an important part in the recovery of this patient from an Esch. coli infection of the hepatobiliary tract.

Endocrinology, Springfield, Ill.

41:1-108 (July) 1947

Effect, in Rats, of High Fat Diets on Renal Excretion of Water and Antidiuretic Substances. S. H. Leslie and Elaine P. Ralli.—p. 1.
Relative Estrogenic Activity of Compounds Related to Estriol. M. N. Huffman and A. Grollman.—p. 12.
Regulation of Endogenous Cortin Production. R. E. Hemphill and M. Reiss.—p. 17.
Changes Induced in Adrenal Cortical Zones by Ovarian Hormones. D. J. Kimeldorf and A. L. Soderwall.—p. 21.
Gonadotropic Modifying Action of Sera of Animals Treated with Hypophyseal Extracts. P. A. Katzman, N. J. Wade and E. A. Doisy. —p.27.
Succinic Dehydrogenase in Rat Ovarian Tissues During Pregnancy and Lactation. R. K. Meyer, S. W. Soukup, W. H. McShan and C. Biddulph.—p. 35.
Acid and Alkaline Phosphatases in Ovarian Tissues of Rat During Pregnancy and Lactation. R. O. Stafford, W. H. McShan and R. K. Meyer.—p. 45.
Comparison of Liver-Glycogen Deposition and Work Performance Tests for Bio-Assay of Adrenal Cortex Hormones. M. L. Pabst, Ruth Sheppard and M. H. Kuizenga.—p. 55.
*Determination of Relative Activities of Antithyroid Compounds in Man Using Radioactive Iodine. M. M. Stanley and E. B. Astwood.—p. 66.
Response of Alkaline Phosphatase of Adrenal Cortex of Mouse to Androgen. H. Elftman.—p. 85.
Gonadotrophic Effects of Exogenous Sex Hormones on Testes of Sparrows. C. A. Pfeiffer.—p. 92.

Potency of Antithyroid Drugs Determined by Means of Radioactive Iodine.—Stanley and Astwood describe a method of assay for the potency of antithyroid compounds, which depends on the modification of a predictable pattern of accumulation of radioactive iodine by the thyroid gland as detected by serial counts with an externally placed Geiger-Muller counter. The results of assay of thirty-two compounds in 90 subjects are given. The assay values are in most instances considerably different from those obtained by previous methods which depended on the goitrogenic effects in animals. There is much closer agreement between the results by this method and those obtained from clinical trials, though some discrepancy, real or apparent, still exists. By this method some of the more active compounds tested were found to have the following potencies (thiouracil was used as the reference standard and assigned an activity of 1.0): 2-mercaptoimidazole, 10; thiocarbamylthioglycollic acid, 2.5; 6-methylthiouracil, 2; thiobarbital, 2; 2-mercaptobenzimidazole, 2.5; thiourea, 1, and 6-n-propylthiouracil, 0.75.

Georgia Medical Association Journal, Atlanta

36:287-342 (Aug.) 1947

Vagotomy. J. W. Turner.—p. 287.
Carcinoma of Colon. J. D. Martin Jr.—p. 290.
Surgery of Colon and Rectum. E. Boling.—p. 293.
Prevention of Postoperative Pulmonary Complications. M. Berry and P. D. Vella.—p. 297.
Early Ambulation: Advantages in 505 Cases. T. C. Davison, A. H. Letton and W. M. Hendry.—p. 299.
Report of Crippled Children's Services of State Welfare Department. F. G. Hodgson.—p. 305.
Endocrine Complications of Thyroid Surgery. P. D. Vella and M. Berry. —p. 306.
Morton's Toe Syndrome. J. H. Kite.—p. 309.
Fate of Patients with Lung Abscesses in Georgia. R. C. Major and H. B. McLean.—p. 314.
Dedication Address Athens General Hospital. M. Cutler.—p. 320.

Journal of Clinical Endocrinology, Springfield, Ill.

7:475-534 (July) 1947

*Bilateral Familial Pheochromocytomata with Paroxysmal Hypertension: Successful Surgical Removal of Tumors in 2 Cases, with Discussion of Certain Diagnostic Procedures and Physiological Considerations. E. Calkins and J. E. Howard.—p. 475.
Syndrome Produced by Absence of Germinal Epithelium Without Impairment of Sertoli or Leydig Cells. E. B. del Castillo, A. Trabucco and F. A. de la Balze.—p. 493.
Urinary Excretion of 17-Ketosteroids in Various Conditions of Oligophrenia Correlated with Some Autopsy Observations. C. E. Benda and Emily M. Bixby.—p. 503.
Estrone Clearance Test in Infectious Hepatitis. B. Zondek and Riwka Black.—p. 519.

Bilateral Familial Pheochromocytomas.—Calkins and Howard state that although the majority of chromaffin tumors have been found in or adjacent to the adrenals, characteristic symptoms have occurred in patients subsequently proved to have chromaffin tumors of Zuckerkandl's body, the retroperitoneal ganglions, the semilunar ganglions and even the thoracic sympathetic ganglions. Recent experiences with 2 patients disclosed that in certain instances more than 1 active tumor may be present. A woman and her niece had each previously been reported as cured by removal of a medullary adrenal tumor. Both had recurrences of symptoms, and each was found to have another tumor in the opposite adrenal. The authors describe the clinical course of these 2 patients and their responses to certain drugs, notably histamine; they review the literature on multiple tumors of this character. The histamine test devised by Roth and Kvale (abrupt rise in blood pressure), proved to be a reliable guide for further surgical exploration when symptoms recurred after removal of a tumor. Since pheochromocytomas may present the symptomatology of paroxysmal hypertension, benign hypertension, malignant hypertension or hyperthyroidism, it is urged that the histamine and other pharmacologic tests be used more widely.

Journal of Experimental Medicine, New York

86:77-192 (Aug.) 1947. **Partial Index**

Antiproteins in Horse Serums. M. Heidelberger.—p. 77.
Origin of Heparin: Examination of Heparin Content and Specific Cytoplasmic Particles of Neoplastic Mast Cells. Jean Oliver, F. Blood and C. Mangieri.—p. 107.
Morphology and Behavior of Neoplastic Mast Cells Cultivated in Vitro. G. H. Paff, F. Bloom and C. Reilly.—p. 117.
Amino Acid Composition of Highly Purified Viral Particles of Influenza A and B. C. A. Knight.—p. 125.
Multiple Virus Infection of Single Host Cells. J. T. Syverton and G. P. Berry.—p. 145.
Influence of Injections of Homologous Hemoglobin on Kidneys of Normal and Dehydrated Animals. J. J. Lalich.—p. 153.
Infection of Mice with Mammalian Tubercle Bacilli Grown in Tween-Albumin Liquid Medium. Cynthia Pierce, René J. Dubos and G. Middlebrook.—p. 159.
Changes in Plasma Protein Pattern (Tiselius Electrophoretic Technic) of Patients with Hypertension and Dogs with Experimental Renal Hypertension. Lena A. Lewis and I. H. Page.—p. 185.

Journal of Immunology, Baltimore

56:195-300 (July) 1947

Action of Urea and Some of Its Derivatives on Bacteria: VI. Antibacterial Activity of Propyl and Isopropyl Carbamate, Alone and in Combination with Sulfonamides, and Effect of These Drugs on Para-Aminobenzoic Acid. L. Weinstein.—p. 195.

Id.: VII. Antibacterial Activity of Butyl and Isobutyl Carbamate, Alone and in Combination with Sulfonamides, and Effect of These Drugs on Para-Aminobenzoic Acid. L. Weinstein.—p. 203.

Age and Lung Histamine. E. R. Trethewie.—p. 211.

Studies on Tularemia: I. Comparative Susceptibility of Various Laboratory Animals. Cora M. Downs, L. L. Coriell, G. B. Pinchot and others.—p. 217.

Id.: II. Immunization of White Rats. Cora M. Downs, L. L. Coriell, H. T. Eigelsbach and others.—p. 229.

Id.: III. Immunization of Mice. L. L. Coriell, Cora M. Downs and Mary P. Clapp.—p. 245.

Chemical Detoxification of Flexner Dysentery Antigen: I. Survey of Results. F. W. Barnes, Marguerite Dewey, Sarah S. Henry and Hope Lupfer.—p. 255.

Studies on Growth of Murine Encephalomyelitis Viruses in Fertile Eggs. J. T. Riordan and M. J. Sá-Fleitas.—p. 263.

Continuous Flow Method of Exposing Antigens to Ultraviolet Radiation. K. Habel and B. T. Sockrider.—p. 273.

Studies in Human Inheritance: XXX. Gene Frequency Analysis of Maternal-Fetal Incompatibility. L. H. Snyder.—p. 281.

Cutaneous Reactions with Virus of Herpes Simplex. H. M. Rose and Eleanora Molloy.—p. 287.

Resistance Induced by Vaccinia Virus to Pertussis Infection in Mice. G. Dalldorf, Sophia M. Cohen and Julia M. Coffey.—p. 295.

Journal National Malaria Society, Columbia, S. C.

6:91-154 (June) 1947

Cytologic Studies of Plasmodium: Male Gamete. Mary S. MacDougall.—p. 91.

Studies on Use of 2,4-D for Control of Plants in a Malaria Control Program. T. F. Hall and A. D. Hess.—p. 99.

Entomologic Evaluations of Results of Residual DDT Spraying During 1946. G. H. Bradley and R. F. Fritz.—p. 117.

Nonpigmented Forms of Plasmodium Gallinaceum in Chick Embryos: Water Color Plates. V. H. Haas, Aimee Wilcox and Frances M. Ewing.—p. 122.

Preliminary Report on Malaria Control by DDT Residual Spraying. V. B. Link.—p. 124.

Appraisal of Malaria Reduction in Albania, 1929-1938. P. Putnam and L. W. Hackett.—p. 131.

Experimental Field Type Suppression with SN 7618 (Chloroquine), SN 8137 and SN 12,887 (Paludrine). H. Packer.—p. 147.

Journal of Neurosurgery, Springfield, Ill.

4:403-482 (Sept.) 1947

*Deformities of Dural Pouches and Strictures of Dural Sheaths in Cervical Region Producing Nerve Root Compression: Contribution to Etiology and Operative Treatment of Brachial Neuralgia. R. Frykholm.—p. 403.

Arachnoidal Proliferations with Cyst Formation in Human Spinal Nerve Roots at Their Entry into Intervertebral Foramina: Preliminary Report. B. Rexed.—p. 414.

Cerebral Angiography: Technic Using Dilute Diodrast. F. D. Ingraham and C. A. Cobb Jr.—p. 422.

*Surgical Relief of Spasticity in Paraplegic Patients: I. Anterior Rhizotomy. L. W. Freeman and R. F. Heimburger.—p. 435.

Additional Approach to Internal Carotid Artery for Cerebral Angiography. A. Ecker and R. H. Chamberlain.—p. 444.

Postoperative Spinal Adhesive Arachnoiditis and Recurrent Spinal Cord Tumor. L. M. Davidoff, H. Gass and J. Grossman.—p. 451.

Fibrin Film in Neurosurgery, Further Studies: Insertion of Fibrin Film Between Sutured Dura and Intact Leptomeninges; Effect of Roentgen Therapy on Tissue Reactions to Fibrin Film. O. T. Bailey, F. D. Ingraham, E. B. D. Neuhauser and C. A. Cobb Jr.—p. 465.

Dural Deformities in Cervical Region.—Frykholm operated on 7 patients with signs and symptoms of cervical nerve root involvement by means of a dental drill equipment and vulcanite cutter which greatly facilitated the exposure and decompression of the nerve roots. The signs and symptoms of brachial neuralgia and paresis in some of these cases were due to a narrowing or deformation of the dural pouch, which resulted in an abnormal angulation of the involved nerve roots at their points of exit through the ostiums of the dural sheaths. In addition there was a definite stenosis of these ostiums. Such malformations were sometimes present together with a protrusion or herniation of the adjoining intervertebral disk. Removal of the protruded mass only proved an insufficient measure. In order to completely alleviate the strain or compression to which the nerve roots were subjected by these malformations it was necessary to open the dural sheaths and abolish the angulation of the nerves. In brachial neuralgia due to nerve root compression the deeply situated proximal pain, muscle tenderness and muscle spasm seem to be attributable to the compression of the ventral (motor) root, while the pain irradiating distally to the parts affected with numbness and paresthesias seems to be due to compression of the dorsal (sensory) root. The possibility of pathologic lesion within the dural sheaths as well as outside of them should be considered in the surgical treatment of sciatica.

Surgical Relief of Spasticity in Paraplegia.—Freeman and Heimburger performed anterior rhizotomy as a lifesaving procedure on 15 patients with far advanced paraplegia in flexion resulting from traumatic transection of the spinal cord. An additional 13 patients have been operated on by other surgeons. All patients are still alive. The resulting flaccidity allowed surgical closure of decubitus ulcers, and ambulation with braces and crutches became possible. Debility is not a contraindication to rhizotomy but should serve as an indication for prompt intervention. Following relief of the spasm of the lower limbs and abdominal muscles, the bladder tonus is diminished. This is probably a result of the almost total abolition of spasticity but may be due to the section of the second sacral anterior roots. The last firm dentate ligament is a relatively constant observation at the level of the twelfth dorsal vertebra, where it is contained between the first lumbar root elements. Preoperative roentgenograms of the lumbodorsal region in which the twelfth dorsal vertebra is marked should be used as an additional check. With both the twelfth thoracic and first lumbar roots identified, section of the anterior roots should proceed caudally. A root that is nearly double the size of its neighbor should be sectioned not as one root but as two. The first and second sacral roots are the last large roots in about an equal number of cases. Stimulation of each root before its severance is an aid in differentiating dorsal roots. The limbs should be tested for residual spasm before the wound is closed. Local anesthesia or none at all should be used. Every effort should be made to preserve the larger blood vessels which course along the roots. Interference with the blood supply to the conus medullaris may explain the occasional development of atonic bladders. Section of selected sacral anterior roots may be indicated in some of the cases of neurogenic bladder which are resistant to routine methods of care.

Journal of Urology, Baltimore

58:163-220 (Sept.) 1947. **Partial Index**

Pentothal Sodium Intravenous Anesthesia in Major Surgical Interventions on Genito-Urinary Organs: Particular Value in Poor Operative Risk Patient. C. P. Mathé and Maria Helena Ramirez Jaime.—p. 163.

Double Kidney Pelves and Double Ureters, Upper Ureter Ending Ectopically at Vestibule of Vagina: Case Report. L. F. Torres Jr.—p. 171.

Primary Carcinoma of Ureter: Presentation of Case. J. M. Hundley Jr. and J. S. Hunter Jr.—p. 176.

Use of New Viscous Water-Miscible Contrast Medium Rayopake for Cystourethrography. M. L. Brodny and S. A. Robins.—p. 182.

Primary Carcinoma of Male Urethra: Report of 10 Cases. W. E. Lower and K. F. Hausfeld.—p. 192.

*Isolation of Filterable Agent Pathogenic for Mice from a Case of Reiter's Disease. J. Dunham, J. Rock and E. Belt.—p. 212.

Use of Antispasmodic Drugs as Preparation for Intravenous Pyelography. P. L. Singer.—p. 216.

Isolation of Filterable Agent from Case of Reiter's Disease.—Dunham and his associates point out that the term Reiter's disease is applied to a condition characterized by the triad of symptoms, urethritis, conjunctivitis and arthritis. In many instances a fourth symptom develops, consisting of superficial ulcerative lesions on the buccal mucosa, plantar skin of the feet, epithelium of the glans penis and the mucosa of the urethra and bladder. The great mass of negative evidence has pointed toward the disease being caused by a viral infection. The patient studied was a man aged 23. During the time he was hospitalized two specimens were collected to isolate a virus which might be the cause of the disease. The material consisted of urethral discharge which was aspirated into a sterile syringe and expelled into a vial containing 5 cc. of heart infusion broth to which had been added 10 per cent of beef serum. The second specimen was obtained by wiping the eye with a sterile cotton applicator, which was then dipped into a second

vial of the serum-broth mixture. Twelve 12-day embryonated eggs were inoculated with 0.01 cc. of the broth suspension of the first specimen and twelve similar eggs were inoculated with the material from the second vial. The eggs were sealed with paraffin, returned to the incubator for forty-eight hours and then placed in the refrigerator for a two hour chilling period. The allantoic fluid was aspirated from each series of eggs and pooled before filtration through a Seitz EK bacteriologic filter. The pooled allantoic fluid was aseptically transferred after filtration to glass ampules, which were flame sealed and immediately placed in a mixture of alcohol and solid carbon dioxide to freeze the contents. Mice were inoculated with the egg passage material. In slightly over 60 per cent of the inoculated mice conjunctivitis developed, while none of the control animals showed signs of such a condition. Filtration of the infective material indicates that the infectious agent is a virus which may be propagated in the developing egg.

Medical Annals of District of Columbia, Washington

16:413-468 (Aug.) 1947

Treatment of Acute (Obstructive) Cholecystitis. C. S. White.—p. 413.
Diagnosis and Medical Management of Gall Bladder Disease. F. A. J. Geier.—p. 417.
Gallstone Obstruction of Intestine: Brief Review of Literature with Report of 4 Cases. W. L. Harris, C. E. McNamara and V. J. Dardinski.—p. 422.
Histopathology, Chemistry and Supportive Treatment of Burns. W. C. Meloy.—p. 426.
Post-Traumatic Psychoses and Neuroses. S. A. Silk.—p. 432.

16:469-532 (Sept.) 1947

Clinical Aspects of Malaria. P. R. Wilner.—p. 469.
Review of Some Advances in Ophthalmic Surgery During World War II. J. N. Greear Jr.—p. 474.
Use of Parenteral Fluids in Treatment of Shock. J. J. Weinstein.—p. 478.
Radical Pancreaticoduodenectomy for Carcinoma of Ampulla of Vater and Head of Pancreas: Report of Case. P. S. Putzki and J. H. Scully.—p. 485.
Treatment of Nonspecific Ulcerative Colitis. B. B. Crohn.—p. 492.

Michigan State Medical Society Journal, Lansing

46:729-872 (July) 1947

Development and Use of Psychiatric Out-Patient Department. A. H. Ruggles.—p. 793.
Fundus Oculi in Diagnosis and in Prognosis. E. B. Spaeth.—p. 799.
Missed Meckel's Diverticula: Presentation of 9 Cases. C. E. Umphrey.—p. 805.

46:873-1000 (Aug.) 1947

Skin Grafting for Recurrent Pilonidal Cyst: Method of Primary Wound Closure Following Surgical Excision. J. W. Hubly, R. L. Mustard and R. A. Stiefel.—p. 921.
Trends in Diabetes Mellitus. G. C. Thosteson.—p. 924.
Should Patients Be Ambulatory after Lumbar Puncture? Observations on Frequency, Cause and Prevention of Postlumbar Puncture Reactions. M. J. Cook.—p. 930.
Some Psychosomatic Disorders Involve Skin. J. C. Moloney.—p. 934.
Methemoglobinemia from Nitrates in Well Water. F. J. Chapin.—p. 938.

Military Surgeon, Washington, D. C.

101:191-270 (Sept.) 1947. **Partial Index**

Scouting for Hospital Sites in Normandy. J. R. Darnall.—p. 191.
Movement of Evacuation Hospital By Air. P. H. Martin.—p. 202.
Has Psychiatry Failed Us in World War II? A. R. Koontz.—p. 204.
*Bacteriostasis and Hemostasis by Use of Fibrin Foam and Penicillin. G. S. Baker and C. Smith Jr.—p. 208.
Ophthalmic Practice with an Army Hospital in North African and Southern France Ports. M. N. Young.—p. 211.
Gangrenous Stomatitis. K. Kohn.—p. 218.
Sanitary Corps Officer in Nutrition. E. F. Beach.—p. 222.
Multiple Penetrating Craniocerebral Wounds Inflicted by Means of a Hatchet: Report of a Case in Which Recovery Occurred. K. H. Abbott.—p. 224.

Bacteriostasis and Hemostasis by Fibrin Foam and Penicillin.—Baker and Smith suggest a new method for maintaining high local concentrations of penicillin, namely, the employment of fibrin foam and thrombin saturated with penicillin. The bacteriostatic activity of the penicillin is not inhibited nor is the hemostatic effect of the fibrin foam and thrombin reduced when the two are combined with penicillin. Because of the hemostatic property of the combination it is useful during operative procedures as well as in the treatment of acute or chronic contaminated wounds. The authors report a case in which, following the initial sequestrectomy with a tear in friable dura, meningitis, encephalitis or cerebrospinal rhinorrhea did not develop. They attribute this fact largely to the use of fibrin foam saturated with penicillin and thrombin.

New England Journal of Medicine, Boston

237:349-382 (Sept. 4) 1947

*Bacterial Endocarditis: Experiences with Penicillin Therapy at Massachusetts General Hospital, 1944-1946. O. Paul, E. F. Bland and P. D. White.—p. 349.
Diagnosis and Management of Renal Artery Thrombosis: Report of Case. W. E. Goodyear and D. E. Beard.—p. 355.
Milkman's Syndrome: Report of Case. I. B. Brick and R. F. Bunch.—p. 359.
Chemical Factors in Asthma. J. G. Wiswell and F. M. Rackemann.—p. 364.
Acute Infectious Hepatitis.—p. 369.
Intrahepatic Cholangitis.—p. 372.

Penicillin Therapy in Bacterial Endocarditis.—Paul and his associates say that 44 patients with bacterial endocarditis were treated with penicillin at the Massachusetts General Hospital in the three year period 1944 to 1946. Twenty-nine are living and are considered cured. One patient died from a second attack of bacterial endocarditis and 8 others succumbed to cardiovascular complications of the disease, although the infection itself appeared to have been overcome. Six patients died without evidence of control of the bacteremia. Rheumatic heart disease was present in 36 cases; 6 were diagnosed as congenital heart disease; 1 case was classified as calcareous aortic stenosis, and in another case the nature of the underlying cardiac lesion was unknown. Infections of the upper part of the respiratory tract preceded the endocarditis in 13 cases, and extractions of teeth in 5. Alpha-hemolytic streptococci were responsible for 36 of the infections. There were 5 cases of bacterial resistance to penicillin in vitro; 2 of these patients were cured.

Northwest Medicine, Seattle

46:577-656 (Aug.) 1947

Surgical Management of Extremity Wounds. D. B. Slocum.—p. 594.
Medical Management of Elderly Surgical Patient. D. M. Green.—p. 597.
Lesions of Blood Vessels Following Acute Injury. R. A. Wise.—p. 600.
Rupture of Urinary Bladder: Avulsion of Vesical Neck. C. D. Donahue.—p. 605.
General Considerations in Treatment of Ankle Fractures. D. E. Moore.—p. 611.
Craniocerebral Trauma. F. J. Wooliever.—p. 614.
Plan for Management of Erythroblastosis Fetalis (Congenital Hemolytic Disease) and Icterus Gravis Neonatorum. W. Ricker and J. R. Czajkowski.—p. 620.

46:657-740 (Sept.) 1947

*Presacral Neurectomy in Treatment of Primary Dysmenorrhea. L. Patricelli.—p. 677.
Rh Factors and Hemolytic Disease of Newborn. A. W. Fritsch.—p. 681.
Transthoracic Gastrectomy. L. F. Martinson, S. R. Gillespie and A. Hunter.—p. 685.
Hour Glass Stomach. E. R. Sanderson and G. S. Player.—p. 689.
Cerebrovascular Accident: Rational Therapeutic Approach. R. M. Rankin.—p. 691.

Presacral Neurectomy in Dysmenorrhea.—Patricelli differentiates between primary and secondary dysmenorrhea, designating as primary cases those in which there are no gross anatomic lesions or infections and secondary, those in which there is organic disease in the pelvic organs or organs adjacent to them which is responsible for the pain. Practically all patients classified as having primary dysmenorrhea have had severe symptoms since the onset of menstruation, and it is in these cases, the spastic or uterine type of dysmenorrhea, that one sees most relief from presacral neurectomy. Patricelli performed the operation in 41 cases and found that the results were good. There are two warnings that must be kept in mind; first, a very extensive resection may result in temporary loss of vesical control; second, there may result an inability to experience sexual satisfaction. It must be added that there is always a potential operative mortality, which is low. None of these 3 complications occurred in the author's cases. Relief was experienced in 39 of the 41 cases, and in the 2 cases regarded as failures it was later realized that psychogenic factors played an important part and that surgical treatment had perhaps been a poor choice.

Psychosomatic Medicine, Baltimore

9:225-286 (July-Aug.) 1947

Relationship Between Blood Sugar and Lymphocyte Levels in Normal and Psychotic Subjects. H. Freeman and F. Elmadjian.—p. 226.
Studies Concerning Etiology and Pathogenesis of Neurocirculatory Asthenia: V. Introduction of New Test for Diagnosis and Assessment of Syndrome. M. Friedman.—p. 233.
Id.: VI. Episodic Neurogenic Discharge as Manifestation of Syndrome. M. Friedman.—p. 242.
Pseudo-Hermaphrodism: Psychosomatic Case Study. Leona M. Bayer. —p. 246.
Experimental Induction of Acute Animal Behavior Disorders as Method in Psychosomatic Research. E. Stainbrook.—p. 256.

Review of Gastroenterology, New York

14:585-660 (Sept.) 1947

Histopathology of Semisquamous Epithelial Layer in Colon. F. Duran-Jorda.—p. 595.
Therapeutic Response in Chronic Nephrosis to Treatment for Cirrhosis of the Liver: Case Report. L. M. Morrison.—p. 603.
Amebic Granuloma of Cecum. G. Zucker.—p. 609.
Anemia Due to Endameba Histolytica: Case Report. R. Upham and H. B. Shookhoff.—p. 613.
Hematological Aspects of Gastrointestinal Disease. C. Reich.—p. 615.
Gastrointestinal Tract and Nutrition in Rheumatoid Arthritis. P. J. Warter, R. W. Betts and S. Horoschak.—p. 617.
Protein Hydrolysate: Study of Effect on Peptic Ulcer Patients During One Year. A. X. Rossien.—p. 623.

Southern Medical Journal, Birmingham, Ala.

40:721-800 (Sept.) 1947. **Partial Index**

*Observations in Treatment of Hypertension with Rice-Fruit Diet. M. E. Flipse and M. J. Flipse.—p. 721.
Multiple Carcinomata of Uterus. H. L. Pearson Jr.—p. 728.
Regional Enteritis: Case Report and Certain Conclusions. J. M. Forney, M. Eskridge and J. S. Shaver.—p. 732.
Simple Cord Clamp. W. W. Daniel.—p. 736.
Diagnostic Value of Glucose Tolerance and Insulin Tolerance Tests in Endocrine Disorders. R. B. Greenblatt and H. S. Kupperman. —p. 737.
*Clinical Evaluation of Total Blood Proteins and Albumin and Globulin Fractions in Hospitalized Patients: Analysis of Data in 300 Cases. D. Cayer and G. C. Nabors.—p. 745.
Clinical Use of Streptomycin: Report of 35 Cases. Jean J. Vivino, H. L. Hirsh and H. F. Dowling.—p. 751.
Migraine as Seen by Ophthalmologist. F. A. Holden.—p. 757.
Intravenous Administration of Histamine as Treatment of Ménière's Syndrome. R. Harris.—p. 761.
Statistical Comparative Study on Mental Diseases Between Cuba and United States. J. A. Bustamante.—p. 768.
Nummular-Like Dermatoses. M. T. Van Studdiford, L. D. McLean and A. Alvarado.—p. 773.
Mobilizing Community Resources for Health. A. H. Martikainen. —p. 778.
Modified Nicola Operation for Correction of Recurring Anterior Dislocations of Shoulder. M. Mangels Jr. and C. A. Robinson.—p. 784.

Rice-Fruit Diet in Hypertension.—Summarizing their experience over a two year period with hypertensive patients who had been placed on a rice, fruit and sugar diet, the authors say that a strict rice-fruit routine was effective in controlling the blood pressure in 20 of 32 cases of essential and renal hypertension in ambulatory private patients. Benefits from the strict diet are shown within a maximum period of six weeks. The diet is of benefit in cases of chronic uremia and severe edema in which other treatment has failed. Restriction of water is not necessary to obtain benefit. Ten of 14 of those benefited by a strict routine maintained the improvement when the diet was modified with meats, vegetables and even a small amount of salt. The addition of sulfocyanate and other medicaments is not contraindicated in the treatment of patients on this diet. The diet is difficult for patients to follow, and many failures result from poor cooperation. The harmful effects of the diet are primarily those of starvation in persons who do not take their full caloric requirements.

Clinical Evaluation of Blood Protein.—Cayer and Nabors think that since the proteins of the blood are maintained by the tissue reserve stores and the dietary intake, the laboratory finding of a decrease in the serum proteins of the blood is indicative of tissue protein depletion. This study was undertaken to determine when the serum protein determinations are of diagnostic or therapeutic assistance. In serum protein determinations on 300 unselected hospital patients, 34 per cent were below 6.0 Gm. per hundred cubic centimeters. Whenever a reduction of total serum proteins was found, it was invariably due to a decrease of the albumin fraction. The globulin fraction was above the lower limit of normal in almost all instances. The development of edema is usually, but not always, related to the total serum protein and albumin levels. No critical edema level for either the total serum proteins or the albumin fraction was found. The correlation of clinical edema with lowered serum proteins and albumin was closest in patients with chronic nephritis and disease of the liver. Instances of edema were found in which none of the accepted causative mechanisms seemed to provide an adequate explanation.

Southern Surgeon, Atlanta, Ga.

13:493-612 (Aug.) 1947

*Bilateral Segmental Vagal Resection in Treatment of Peptic Ulcer: Clinical Study of 50 Cases. R. L. Sanders.—p. 493.
Peripheral Arterial Occlusion: Report of Successful Surgical Treatment of Occlusion of Brachial Artery More Than 36 Hours After Onset of Symptoms. C. E. Gillespie.—p. 505.
Urologic Complications of Pelvic Fractures. A. J. Butt and T. D. Moore.—p. 509.
Gastroscopy in Relation to Gastric Surgery. E. D. Mitchell Jr.—p. 521.
Management of Tumors of Superior Maxilla and Adjacent Structures. W. L. Simpson, R. H. McArthur and R. H. Atkinson.—p. 526.
Report of Results in Treatment of Cancer of the Breast. C. W. Ingle. —p. 546.
Acute Intestinal Obstruction: I. Critical Survey of Past Six Years, 1941 to 1946, Inclusive (448 Cases) and II. Summary of Fourteen Years' Experience with "Newer Concepts" in Pathologic Physiology and Treatment, 1933 to 1946, Inclusive (1,143 Cases). M. J. Tendler, A. N. Streeter and R. S. Cartwright.—p. 551.
Management of the Hyperthyroid Patient. T. H. West.—p. 574.
New Horizons in Therapeutic Nerve Block in Treatment of Vascular and Renal Emergencies with Continuous Caudal and Continuous Spinal Analgesia and Anesthesia. R. A. Hingson, F. E. Whitacre, J. G. Hughes, H. B. Turner and J. M. Barnett.—p. 582.

Vagal Resection.—On the basis of 50 vagal resections performed by him within the past year, Sanders has no hesitancy in recommending the procedure in suitable cases. His experience does not justify conclusions regarding the permanence of the symptomatic relief or healing of the ulcer. In the typical case the immediate and complete cessation of symptoms is phenomenal and, if lasting, is in itself sufficient to commend the treatment to patients with an intractable or recurrent ulcer. It is likewise advantageous in that patients are able to follow a normal diet and thus to avoid anemia.

Surgery, Gynecology and Obstetrics, Chicago

85:275-418 (Sept.) 1947

*Cytologic Recognition of Cancer in Exfoliated Material from Various Sources: Useful Modifications of Papanicolaou Technic. W. C. Hunter and H. L. Richardson.—p. 275.
Tumors of Carotid Body. F. H. Lahey and K. W. Warren.—p. 281.
*Role of Chronic Thrombosis of Portal Vein and Its Tributaries in Syndrome of Splenic Anemia. M. P. Kelsey, H. E. Robertson and H. Z. Giffin.—p. 289.
Early Mobilization of Patients After Major Surgical Procedures. N. W. Cornell and D. T. W. Lin.—p. 294.
Lung Mobilization: Indications in Management of "Captive" Lung. H. T. Langston.—p. 301.
New Eschar Technic for Local Treatment of Burns. C. H. Chase. —p. 308.
Pulmonary Embolism by Amniotic Fluid: Report of 3 Cases with New Diagnostic Procedure. P. Gross and E. J. Benz.—p. 315.
Plastic Surgical Closure of Decubitus Ulcers in Patients with Paraplegia. H. Conway and others.—p. 321.
Sarcomas of Small and Large Intestine. J. Rabinovitch, D. M. Grayzel, A. J. Swyer and B. Pines.—p. 333.
*Treatment of Severe Intracranial Infection by Repeated Intraventricular Injection of Penicillin: Theoretical and Practical Considerations. B. D. Wyke.—p. 340.
Significance of Skin Recurrences Following Radical Mastectomy. D. R. Oliver and E. D. Sugarbaker.—p. 360.

Cytologic Recognition of Cancer in Exfoliated Material from Various Sources.—Hunter and Richardson show that the cytologic recognition of carcinoma in exfoliated material, originally described by Papanicolaou, is reliable in the hands of experienced cytologists and can be applied to a number of organs and systems of the body. Not only is this method of value in the diagnosis of cancer of the uterus, where it was first applied, but also in carcinoma of the bladder, rectum, stomach and bronchus. Soon after they began to study vaginal fluid for exfoliated material, Hunter and Richardson became dissatisfied with some features of the Papanicolaou technic and sought to eliminate certain inherent weaknesses. They describe a modi-

fication of the method of obtaining vaginal fluid which has proved easy and workable. Concentration of cells saves much time in study and artefacts are practically eliminated. The Papanicolaou stain can be applied just as readily to such material as to smears. The study of exfoliated material is a valuable adjunct to bronchoscopic and gastroscopic examination. The mucus obtained at bronchoscopic and gastroscopic study should always be saved, embedded and sectioned. They were able to make a positive diagnosis of bronchogenic carcinoma in a number of instances from cells found in the mucus when the biopsy was negative or equivocal.

Chronic Thrombosis of Portal Vein in Splenic Anemia.—Kelsey and his co-workers point out that thrombosis of the splenic and portal veins and splenic anemia, or Banti's syndrome, are often seen together in the same patient. Despite numerous investigations the causal interrelations of the two processes are still not understood. Several diseases, including Gaucher's disease, chronic hemolytic anemia and some forms of leukemia, have been segregated as specific entities from splenic anemia, while dozens of suggestions have been advanced as to the etiologic basis and pathogenesis of the remaining large number of unsolved cases. Several important questions arise when one attempts to decide which of these assumptions is most tenable. What is the cause of the splenic and portal venous disease seen in many cases of splenic anemia, or Banti's syndrome? Does the obstruction and congestion caused by chronic splenic and portal thrombosis produce the splenomegaly? Kelsey and his associates made a clinical and pathologic analysis of data on several groups of cases. They conclude that a well established cause outside the spleen can be found to account for chronic disease of the splenic or portal veins in most cases. No evidence was found that toxins liberated by the spleen cause the venous disease. The most commonly observed type of lesion in the veins in chronic disease of the portal vein is chronic thrombosis. In the cases of severe so-called phlebosclerosis the condition is the result of ancient thrombosis. Neoplastic invasion occurs in a few instances and atherosclerosis in a rare case. In the majority of the cases of chronic disease of the splenoportal veins splenomegaly is associated. Several factors other than portal obstruction influence the size of the spleen in these cases. Factors which tend to limit splenic enlargement are splenic infarction with parenchymal destruction, advanced age of the patient, well developed collateral circulation and brief duration of the obstruction. Splenic anemia is not a specific disease entity. The syndrome can be produced by a number of diseases; the commonest are chronic splenoportal thrombosis and hepatic cirrhosis.

Intraventricular Penicillin in Severe Intracranial Infection.—Although intraventricular administration of penicillin has been employed sporadically, a systematic account of the theory and practice of this method has not been given. Wyke discusses the factors controlling the passage of penicillin through the blood-brain barrier in the light of previous experience and the results obtained by him in a series of cases. He concludes that therapeutically adequate concentrations of penicillin cannot be maintained for sufficient time in the cerebrospinal fluid by systemic administration of the drug. He considers repeated intraventricular injection of penicillin indicated in purulent intracranial infection with a penicillin-sensitive organism, when the cerebrospinal fluid pressure and cell counts are high; in intracranial infection with highly virulent or partially penicillin-sensitive organisms, especially in children; in intracranial infection with a penicillin-sensitive organism which fails to show early and progressive improvement under medical treatment; in intracranial infection with a penicillin-sensitive organism in which cerebrospinal fluid block is suspected; in intracranial infection in which streptococci are found in the cerebrospinal fluid; in cases in which intracranial operations are to be carried out in the presence of potentially infected foci, and in any case of head injury in which there develops cerebrospinal rhinorrhea, papilledema or coma. The operative technic and the postoperative management of patients given intraventricular injections of penicillin are described.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Heart Journal, London

9:77-144 (April) 1947

Paroxysmal Tachycardia Followed by Temporary Inversion of the T Waves. R. E. Steen.—p. 81.
Effect of Demerol, Ergotamine and Dihydro-Ergotamine on Mortality After Coronary Occlusion in Dogs. G. W. Manning and G. C. Caudwell.—p. 85.
Unusual Longevity in Aneurysm of Thoracic Aorta. R. Kauntze.—p. 96.
*Coarctation of Aorta: II. Clinical Features. C. Bramwell.—p. 100.
Heart in Toxemia of Pregnancy. P. Szekely and L. Snaith.—p. 128.

Coarctation of Aorta.—Bramwell reports on clinical features of 26 cases of coarctation of the aorta. In 20 the diagnosis was based on clinical evidence, in 5 it was made by the radiologist, and in 1 the lesion was discovered at necropsy. Coarctation of the aorta is apt to escape recognition unless the possibility of the condition is kept in mind. When associated with a patent ductus or with aortic incompetence, coarctation is especially liable to be overlooked. Clinically the diagnosis is based on the finding of high systolic blood pressure in the upper limbs associated with low pressure in the lower limbs, pulsating arteries on the back or front of the chest, excessive arterial pulsation at the root of the neck and a late systolic murmur of abnormal distribution. The most important radiologic manifestations are rib notching and occasionally a double aortic knuckle. Diagnosis is most difficult when the ductus is patent, for then there may be no collateral circulation and no notching of the ribs. In many cases symptoms first appear following some intercurrent infection or physical strain. Dyspnea, palpitation and fatigue are the most frequent complaints. Pain in the trunk and arms may be due to pressure on nerves by the dilated arteries participating in the collateral circulation. The spinal anastomosis is of importance in this connection. Despite a deceptively good exercise tolerance, a sudden strain may prove fatal even in the prime of life. Fatal complications are so liable to develop unexpectedly that prognosis is extremely uncertain; a patient who appears to be in robust health one day may be dead the next. Patients in whom symptoms date from childhood rarely live to 30 years of age, whereas those who surmount the hazards of the first three decades may suffer little disability from their coarctation.

British Journal of Dermatology and Syphilis, London

59:281-326 (Aug.-Sept.) 1947

Psychologic Aspects of Seborrheic Dermatitis. E. Wittkower.—p. 281.
Treatment of Sycosis Barbae, Special Reference to Relapses. B. Russell.—p. 294.
Relation of Hair-Growth on Body to Baldness. H. Harris.—p. 300.
Assessment of Merit of Sun-Protecting Preparations. W. Koch.—p. 309.
Sclerema Neonatorum. E. Davis and R. T. Drain.—p. 312.

British Medical Journal, London

2:283-318 (Aug. 23) 1947

*Chronic Hypertension and Pregnancy. F. J. Browne.—p. 283.
Further Observations on Production of Canine Hysteria by Flour Treated with Nitrogen Trichloride (Agene Process). E. Mellanby.—p. 288.
Perforated Peptic Ulcer: Short-Term Variations in Frequency. R. A. Jamieson.—p. 289.
Clinical Observations on Present Outbreak of Acute Poliomyelitis. W. H. Kelleher.—p. 291.
*Artificial Circulation Produced by Rocking: Use in Drowning and Anesthetic Emergencies. F. C. Eve.—p. 295.
Poisoning by Inocybe Fastigiata. D. Wilson.—p. 297.

Chronic Hypertension and Pregnancy.—Browne reviews observations on women who, before pregnancy starts, are subject to chronic hypertensive vascular disease. Such patients constitute about 25 per cent of all cases of toxemia of pregnancy. In the woman with chronic hypertension the blood pressure tends to fall to a normal level in the second trimester of pregnancy. It may or may not rise again in the later weeks. If the systolic blood pressure rises above 160 mm. of mercury it is likely that albumin will appear in the urine and the fetus will die in utero. Except in the severer cases with signs of renal involvement, retinal arteriosclerosis, exudates or papilledema there is no need to terminate pregnancy in the early

weeks. If the pregnancy is allowed to continue treatment should aim at keeping the blood pressure below the danger level of 160 mm. of mercury. For this the best agent is rest—if necessary in bed. With careful supervision most patients with chronic hypertension go to term and deliver themselves spontaneously of living infants. In those patients in whom the pregnancy is allowed to continue the outlook for successful pregnancy depends chiefly on the height of the blood pressure at the beginning of pregnancy. If it is over 150 systolic and 100 diastolic only about 33 per cent of women give birth to viable infants. The incidence of preeclamptic toxemia is about seven times, and of eclampsia ten times, that in women who are normal at the start of pregnancy. There is no reason to believe that the hypertension is permanently aggravated by the pregnancy.

Artificial Circulation Produced by Rocking.—Eve describes observations on a case of drowning in which the victim was treated by manual rocking. In this method the patient, instead of being rocked on a stretcher resting on a trestle, is supported face downward on the forearms of two operators, facing each other, who tilt the body 45 degrees each way alternately. After describing observations on a drowned boy and calling attention to experiments on drowned dogs in Toronto, Canada, the author discusses the hydrostatics of the stopped circulation and resuscitation in anesthetic emergencies. He stresses that resuscitation in severe cases demands artificial circulation as well as artificial respiration: ventilation of the lungs alone may fail, even with oxygen. With a newly stopped circulation the aims are, (1) to force the dammed-up venous blood right through the lungs by prompt rocking; (2) to force blood through the coronary circulation, and (3) to fill both sides of the heart. Thus the stopped heart may be coaxed to pump again and the oxygenated circulation—artificial or restored—may function in time to revive the respiratory center.

2:319-358 (Aug. 30) 1947

*Early Treatment of Poliomyelitis. H. J. Seddon.—p. 319.
*Penicillin Therapy in Ophthalmia Neonatorum. A. Sorsby.—p. 322.
*Fatal Case of Acute Porphyria with Unusual Features. A. Abrahams, C. J. Gavey and N. F. Maclagan.—p. 327.
Hypoglycemia Following Partial Gastrectomy. J. A. L. Gilbert and D. M. Dunlop.—p. 330.
Status Epilepticus Complicating Pregnancy. J. F. Goodwin and C. W. Lawson.—p. 332.
Discontinuous Intravenous Infusion and Transfusion: Advantages and Tehnic. H. Bailey.—p. 333.

Early Treatment of Poliomyelitis.—The extent of the paralysis should always be ascertained about one week after its onset and then at intervals of two weeks until two months after the onset. Seddon states that observations at intervals of a month will then be sufficient, and after six months at intervals of two months. Maintenance of the paralyzed part in a sensible position should be undertaken from the first. This is the only reason for the application of splints. In order to prevent stiffness of joints and contracture of muscles the affected part should be put through a full range of movement at least once a day, this treatment being started when pain has subsided or ten to fourteen days after the onset of paralysis, whichever period is the shorter. If pain—either muscle tenderness, pain on stretching a muscle, or true muscle spasm—persists beyond this time, or if it is severe in the early stages of the disease, relief may sometimes be obtained by the application of heat; and it will then be considerably easier to carry out the movements that are so essential for the maintenance of the limb in a healthy condition.

Penicillin in Ophthalmia Neonatorum.—Sorsby reports 232 cases, in 224 of which treatment was with penicillin in several different modes of application. In 30 cases good results were obtained by instillation of watery drops of commercial penicillin in a concentration of 2,500 units per cubic centimeter at five minute intervals. In 71 cases the same concentration of penicillin drops was instilled at intervals of one minute for half an hour and subsequently at less frequent intervals. Fifty-two of these 72 cases cleared up quickly. Of 33 cases in which patients were treated with more concentrated drops (10,000 units per cubic centimeter) 27 cleared rapidly. To obviate the need for frequent applications, oily or solid vehicles containing penicillin were tried out in 51 cases. The results were unsatisfactory. In 39 cases the initial local treatment was replaced by massive systemic injection (800,000 units in doses of 200,000 units at three hourly intervals), followed on completion of the course by the instillation of pure penicillin, 10,000 units per cubic centimeter, in 1 per cent methyl cellulose solution at two hour intervals. In 33 cases the response was good. The optimum mode of use of penicillin is still to be determined. The sulfonamide drugs are invaluable as an alternative method of treatment when the response to penicillin is unsatisfactory. For the present sulfonamide compounds still have the advantage of simplicity in administration over either of the two methods used with penicillin.

Fatal Case of Acute Porphyria.—Abrahams and his co-workers report the case of a woman aged 34 who had an illness lasting six weeks, which was characterized by four exacerbations. There were fever, limb pain, weakness, abdominal pain, constipation, mental confusion and epileptiform attacks. A urinary infection was present, and there were two episodes suggesting adrenal involvement. Death was preceded by progressive polyneuritis and respiratory failure. The urine contained from 4.7 to 12 mg. of coproporphyrin a day, which was mainly coproporphyrin III. The stools also contained an excess of coproporphyrin III and an unidentified coproporphyrin. The chief difficulty in the diagnosis of porphyria lies in the comparative rarity. The diagnosis was made more or less accidentally on the eighteenth day of the disease while the urine was being examined for another purpose. It would seem advisable to look for porphyrinuria in any case of obscure abdominal pain associated with constipation, especially if accompanied by mental or neurologic symptoms. The relation of the porphyrin to drugs is not clear in this case. In retrospect there is a suggestion that the condition was aggravated by some of the drugs used. Drugs known to produce porphyrinuria and which should be avoided include sulfonamide compounds, barbiturates, arsenicals, alcohol, phosphorus, selenium and lead.

East African Medical Journal, Nairobi

24:211-244 (June) 1947

Sickle Cell Disease in Northern Rhodesia. E. A. Beet.—p. 212.
Pathology of Central African Natives: Mulago Hospital Post Mortem Studies: II. Pyogenic Diseases. J. U. P. Davies.—p. 223.
Hansen's Disease (Leprosy) and Cockroaches. B. Moiser.—p. 230.
*Penicillin in Treatment of Tetanus. J. H. C. Clarke.—p. 237.

Penicillin in Treatment of Tetanus.—Clarke presents the histories of 3 patients with tetanus, who recovered following treatment with antitoxin and penicillin. The 3 patients were admitted to the hospital late with well established severe tetanic spasms. No dramatic cessation of symptoms occurred during treatment, but the disease did not progress and ran its long course with complete recovery. Evidence is conflicting with regard to the efficacy of penicillin in tetanus, and a great many more controlled cases are necessary before definite conclusions can be formed.

Glasgow Medical Journal

28:199-236 (Aug.) 1947

*Syringe-Transmitted Hepatitis. S. M. Laird.—p. 199.
Application of Fluorescent Microscopy to Detection of Tubercle Bacilli in Public Health Bacteriology. A. B. Andrew, W. Wilson and R. D. Stuart.—p. 220.
Intra-Gastric Drip Feeding in Treatment of Infantile Gastro-Enteritis. J. Berkeley.—p. 224.

Syringe-Transmitted Hepatitis.—Laird presents evidence which indicates that jaundice occurring during antisyphilitic treatment is due neither to syphilis nor to arsenotherapy. It is seldom an intercurrent infection with infective hepatitis. The facts are compatible with the virus of infective hepatitis being transmitted in blood which is passed from one patient to another during intravenous injection. Syringe-transmitted hepatitis may occur in any clinic where numerous injections are given and where the sterilization of syringes and needles falls short of the standards discussed in this paper. The author describes a syringe technic designed to eliminate the transmission of blood

from one patient to another in a large military center. The results obtained, together with controls, indicate that hepatitis complicating arsenotherapy is readily preventable by the careful use of an injection technic such as has been described.

Journal of Neurol., Neurosurg. & Psychiatry, London

10:49-92 (May) 1947

A Mid-Brain Syndrome Following Head Injury. M. Kremer, W. R. Russell and G. E. Smyth.—p. 49.
A Clinico-Pathologic Report on Unusual Cases of Chronic Encephalitis. W. R. Rosanoff.—p. 61.
Sensory Disturbances Occurring in Sciatica Due to Intervertebral Disc Protrusions: Some Observations on Fifth Lumbar and First Sacral Dermatomes. M. A. Falconer, G. L. Glasgow and D. S. Cole.—p. 72.
*Outbreak of Atropine Poisoning. D. N. Parfitt.—p. 85.
Effect of Reinnervation on Collagen Formation in Degenerating Sciatic Nerves of Rabbits. M. Abercrombie and M. I. Johnson.—p. 89.

Atropine Poisoning.—Parfitt reports that 15 men, all Royal Air Force personnel, mostly in their early twenties, were given a period of prolonged narcosis in the treatment of psychoneurosis. The technic of treatment was a modification of one advocated by Brody. It consisted of 3 grains (0.19 Gm.) of "dial" twice a day, together with paraldehyde in 3 drachm (11.65 Gm.) doses to a maximum of 9 drachms (34.88 Gm.) daily. To offset vomiting, 1 minim (0.06 cc.) of liquor atropinae sulphatis (each minim contains 0.6 mg. of atropine sulfate) is suspended in each 1.5 drachms (5.82 Gm.) of paraldehyde, thus giving a maximum of 6 minims of liquor atropinae a day. Before some patients had finished the course and at the commencement of the treatment in others, the dose of atropine recommended by Brody was doubled because vomiting persisted. The physician in charge of the treatment left before the narcoses were completed and the author took over, unfortunately unaware that atropine was being used. As patients came out of the narcosis, in several there developed severe reactions, and there appeared to be an epidemic of schizophrenia. The first day after the suspension of treatment was reasonably quiet. During the second day the patient was wide awake but disquieting behavior was observed, which rose to a peak during the third and fourth days, thereafter subsiding steadily. This is compatible with the comparatively rapid excretion of barbiturate and paraldehyde, leaving the more slowly excreted atropine to produce a purer effect. The most striking early symptom was a pressure of talk accompanied by an irritable aggression and facile emotionalism, immoderate laughter being followed quickly by tears. Intermingled with evidence of increasing instability, there was a mixture of apprehension and anxiety. In 1 patient the aberration resembled insulin coma.

J. Royal Inst. Public Health and Hygiene, London

10:249-282 (Aug.) 1947

Common Industrial Diseases and Their Treatment. J. N. Agate.—p. 257.
Health Inspection of Imported Foodstuffs—Past and Present. M. T. Morgan.—p. 266.

Lancet, London

2:195-230 (Aug. 9) 1947

Subacute and Chronic Hepatitis. A. R. Kelsall, Alice Stewart and L. J. Witts.—p. 195.
Electronarcosis: New Treatment of Schizophrenia. A. S. Paterson and W. L. Milligan.—p. 198.
Determination of Hemoglobin. I. Determination by Cyan-Hematin Method. E. J. King and Margaret Gilchrist.—p. 201.
Mepacrine Eruptions: Case in British Isles. B. Russell.—p. 205.
*Massive Doses of Adrenaline in Acute Toxic Peripheral Circulatory Collapse. Christina C. Christie, T. M. Bowden, I. R. Mackenzie, J. Naismith and J. Bryant.—p. 206.

2:231-266 (Aug. 16) 1947

Cramp and Salt Balance in Ordinary Life. A. J. Hall.—p. 231.
Human-Milk Bank in a Maternity Hospital. Joyce Wright and Elsie M. C. Edwards.—p. 233.
Benign Pneumonia in West African Soldiers. A. S. Hollins.—p. 235.
Reablement of Children with Infantile Cerebral Palsy. E. Collis.—p. 239.
Congenital Atresia of Esophagus: Two Cases Successfully Treated by Anastomosis. R. H. Franklin.—p. 243.
Sudden Death from Perforated Gastric Ulcer. S. Silverman.—p. 245.

Peripheral Circulatory Collapse. — Christie and her co-workers report a case of acute toxic peripheral circulatory collapse with recovery in a man aged 35 who was given 285 cc. of a 1:1,000 solution of epinephrine hydrochloride ("adrenalin hydrochloride") intravenously over fifty-one hours in 15 pints (7,098 cc.) of isotonic sodium chloride solution to maintain his blood pressure and promote urinary output. This dosage works out at an average of 19 cc. per pint (473 cc.), or 5 to 6 cc. an hour. The patient had been taken ill with abdominal pain and vomiting eleven hours before admission. Food poisoning had been the diagnosis. Roentgenologic examination on the morning after his admission showed a dense pneumonia of lobar type. The physical signs in the chest on the day after admission agreed with the roentgen observations. Further examination showed a rapid resolution of the pneumonic process. The pulse rate during convalescence was at first slow, 48 per minute. Later the pulse rate was 70 per minute, and it remained steady afterward. The blood urea level began to fall with the rise in urinary output on the day after the first epinephrine drip and soon fell from 115 to 25 mg. per hundred cubic centimeters and remained at this level. Bacteriologic examination of blood and sputum revealed no specific infecting organism. The dosage of epinephrine used in this case appears colossal in comparison with that of common usage.

Medical Journal of Australia, Sydney

2:93-128 (July 26) 1947

Control of Thyrotoxicosis by Methyl Thiouracil. H. R. G. Poate.—p. 93.
Chronic Subdural Hematoma, So-Called. H. C. Trumble.—p. 106.
*BAL Therapy in Acute Arsenical Poisoning and Gold Intoxication. P. Rundle.—p. 107.

BAL Therapy in Acute Arsenical Poisoning and Gold Intoxication.—Rundle treated a woman aged 57 with acute arsenical poisoning from an injection of oxophenarsine hydrochloride ("mapharsen") for syphilis and a woman aged 46 with gold intoxication due to an injection of gold sodium thiomalate ("myocrisine") for rheumatoid arthritis with BAL, 2,3-dimercaptopropanol. The vehicle is a 10 per cent solution of benzyl benzoate in arachis oil, in which BAL is incorporated in form of a 10 per cent solution. The dosage according to body weight is as follows: 2.5 cc. if the weight is 125 pounds (56.7 Kg.), 3.0 cc. for 150 pounds (68 Kg.), 3.5 cc. for 175 pounds (79 Kg.), and 4.0 cc. for 200 pounds (90.7 Kg.); the solution is given at once by intramuscular injection. The initial dose is repeated every four hours for four doses in ordinary cases. If poisoning is severe the second injection is given after two hours and then single half-doses are given each day for three to four days. Side effects of the drug do occur, but they are not sufficiently severe to contraindicate a course of four injections. In acute arsenical poisoning the short duration of the immediate toxic effects and the extremely short course of the illness with complete absence of such complications as encephalitis, exfoliative dermatitis and peripheral neuritis may be accredited to the efficacy of BAL in the treatment of this patient. In the case of gold intoxication the value of BAL in the rapid recovery of the patient was striking. In the course of eleven days an acutely ill patient with extensive acute exfoliative dermatitis was relieved of her cutaneous lesions and was able to leave her bed.

South African Medical Journal, Cape Town

21:465-504 (July 12) 1947

Nutritional Disorders in Infancy and Early Childhood: Classification and Investigation. A. Altmann.—p. 468.
*Early Rising After Operation. W. A. Pocock and W. Kark.—p. 473.
Parasympathetic Factor in Megacolon. J. Lannon and Elizabeth J. Weller.—p. 480.
"Open" Endotracheal Method of Anesthesia for Harelip and Cleft Palate Operations on Infants. B. Segal.—p. 484.
Treatment of Thyrotoxicosis: Surgical Aspects. M. Lund.—p. 486.

Early Rising After Operation.—Pocock and Kark review the results of early ambulatory treatment in 629 abdominal operations. The results are considered under two main headings: the promotion of rapid mental and physical rehabilitation and the effect of early rising on postoperative complications. There was a considerable reduction in the incidence of pulmonary complications and also a reduced vascular complication rate. Early rising does not affect the incidence of wound sepsis; it does not increase the risks of wound disruption and eventration, and it is not followed by an increase in late postoperative hernia.

Arch. Urug. de Med., Cir. y Especial., Montevideo

30:91-190 (Feb.) 1947

*Culture of Virus of Alastrim. C. M. Rossi and H. C. Tosi.—p. 91.
Hyperchromic Macrocytic Anemia Treated with Folic Acid. W. Scaron, J. B. Gomensoro, S. Castillo de Bonnevaux and L. Zubiaurre.—p. 101.
Inhibiting Action of Human Plasma on Agglutination of Erythrocytes. H. Massella.—p. 132.
Diverticulum of Cecal Appendix. M. A. Patetta.—p. 136.

Cultivation of Virus of Alastrim.—Rossi and Tosi direct attention to several outbreaks of an eruptive disease presenting most of the characteristics of smallpox in some of the frontier provinces of Uruguay. The mortality is usually zero. The disease attacks vaccinated and nonvaccinated persons. Clinical and epidemiologic observations made during an outbreak in 1945 revealed that the eruptive disease was alastrim, which is also known by various other terms such as amaas and pseudosmallpox. Infectious material obtained from the pustules of patients with alastrim was introduced into the chorioallantoic membrane of chick embryos. The virus obtained by this in vivo culture was used for various tests which demonstrated that this virus produces the same inclusions in the epithelial cells of rabbit or guinea pig corneas and in the chorioallantoic membrane as does the virus of smallpox or of vaccinia; the virus can be cultivated in serial passages in the chorioallantoic membrane of the chick embryo; it is possible to infect the skin of rabbits with this virus, and it is also possible to obtain a pure culture from the same virus; cross immunity exists between the virus of alastrim and the vaccinia virus (calf lymph).

Dermatologica, Basel

94:73-136 (No. 2) 1947. **Partial Index**

Recent Investigations of Sensitivity of Skin to Alkalies. W. Burckhardt.—p. 73.
Radium Therapy of Cutaneous Epitheliomas. L. Helg.—p. 102.
Occupational Eczemas in Bee Keepers. E. Börlin.—p. 109.
Pseudopelade of Brocq. G. Miescher and R. Lenggenhager.—p. 122.
*Experimental Investigations on Antiallergic Properties of Vitamin D_2. I. Dainow.—p. 130.

Antiallergic Properties of Vitamin D_2.—Dainow demonstrated in 1939 that intramuscular injections of vitamins A and D into patients with occupational dermatitis made possible continuation of work with the noxious substances. The lesions disappeared and the patients became desensitized. He now describes experiments which demonstrated that the injection of massive doses of vitamin D_2, or calciferol, into guinea pigs prevents the development of bronchospasm, which is ordinarily produced in these animals by the inhalation of aerosols of histamine and acetylcholine. The antagonism between vitamin D_2 and the substances that play an important part in the production of allergic phenomena suggests that calciferol has antiallergic properties. This explains the earlier observation that occupational eczemas can be favorably influenced by vitamin D_2. It also explains in part the favorable action of calciferol in the treatment of tuberculous lupus.

Deutsche medizinische Wochenschrift, Stuttgart

72:369-400 (July 18) 1947

Q Fever (Balkan Grippe). H. Denig.—p. 369.
*Action of Urethane in Leukemias. E. Schulze, E. Fritze and H. H. Müller.—p. 371.
*Appearance of "Irregular" Blood Group Antibodies in Human Milk. (Genesis of Fetal Blood Dyscrasia.) P. Dahr and J. Wolff.—p. 378.
Use of Anticoagulating Substances in Treatment of Coronary Thrombosis. J. Jensen.—p. 381.
Peculiarities of Circulation in Acromegaly. H. Bartelheimer.—p. 382.
Posterior Prolapse of Lumbar Intervertebral Disk. H. Köbcke.—p. 386.

Urethane (Ethyl Carbamate) in Leukemias.—Schulze and his associates report observations on 12 patients with chronic myelosis who were treated with urethane. They find that urethane changes the blood picture and bone marrow in chronic myelosis toward normal and reduces the size of the spleen. Chronic lymphadenoses show only a reduction in the total number of leukocytes. Urethane is without clinical effect in acute myelosis. In true polycythemia the splenic tumor is reduced by urethane therapy but the blood picture is not altered. The effect of urethane medication is temporary. Recurrences result after its administration is interrupted. The therapeutic value of urethane is about like that of roentgen therapy, it is not superior to it. Analysis of the bone marrow of patients with myeloid leukemia who have been treated with urethane indicates that the substance inhibits mitosis.

"Irregular" Blood Group Antibodies in Human Milk.—According to Dahr and Wolff, the Rh antibodies belong to the "irregular" blood group antibodies not regularly occurring in the serum. In studies of 200 specimens of colostrum from healthy puerperal women the authors found the regular group-specific antibodies (anti-A and anti-B), which were also detected in the serum. In 52 specimens there were detected in addition type specific antibodies. Two serum specimens contained irregular A antibodies, which in both instances were detected also in the colostrum. Anti-Rh agglutinins were demonstrated in the colostrum of a mother whose child had hemolytic disease; the same Rh antibody was found in the maternal serum. The milk of 8 women whose infants had erythroblastosis contained no anti-Rh agglutinin, although in 3 of them the antibody was detected in the serum. Thus it seems possible that all regular and irregular blood group antibodies, including the Rh agglutinins, may be excreted in the milk. Consequently it is possible that a newborn with hemolytic disease may be further injured by the intake of mother's milk. Infants with erythroblastosis should not be nursed by their mothers.

Día Médico, Buenos Aires

19:1205-1240 (July 14) 1947. **Partial Index**

*Varicellous Neuraxitis. M. R. Castex, R. L. Repetto and L. E. Camponovo.—p. 1214.

Varicellous Neuraxitis.—Nervous complications of varicella are relatively frequent. They may be considered as varicellous neuraxitis. The symptoms in some cases are similar to those of poliomyelitis. The course of the disease is different. The subjects of this report (2 children and a youth) manifested subacute symptoms of varicellous meningoencephalitis, neuritis, polyneuritis and myelitis. The predominant nervous symptoms were encephalitic, meningoradicular and myelitic. The course of neuritis and polyneuritis in the second patient was similar to that of poliomyelitis with paralysis resembling ascending paralysis of Landry's type. Facial paralysis persisted (two months after control of the disease, probably as a permanent sequel). No sequels remained in the other 2 patients. The differential diagnosis of any of the various forms of varicellous neuraxitis from poliomyelitis is made on the sudden appearance of more or less acute nervous symptoms, showing diffuse involvement of the neurospinal axis with predominance of a nervous sector. The nervous symptoms appear after subsidence of varicella exanthem or in absence of exanthem in persons who are in contact with varicella patients. As a rule, the cerebrospinal fluid is normal, the lumbar puncture gives the patient great relief and the disease follows a favorable course with recovery in a relatively short time and without sequels.

Gaceta Médica de México, Mexico, D. F.

77:105-190 (June 30) 1947. **Partial Index**

*Histopathology of Rheumatic Mediastinitis. T. G. Perrín.—p. 105.
*Mental Hygiene in Relation to Noise and Work. S. Ramírez Moreno.—p. 108.

Rheumatic Mediastinitis.—Perrín found at necropsy on the bodies of 2 persons who died from exudative rheumatic mediastinitis and rheumatic mediastinopericarditis, respectively, rheumatic mediastinal lesions with inflammation and sclero-necrosis of the fat tissues, inflammatory lesions in muscles and extensive nervous ganglionic and fascicular changes. The foregoing changes have not been previously described in the literature. The author designates the lesions as adipose pachylemosis and proliferating chronic myoparatenositis, respectively. The lesions seem to be early phases of the so-called rheumatic muscular fibrositis.

Mental Hygiene in Relation to Noise.—Noise causes physiologic and organic disorders of various degrees. It produces mental fatigue and abnormal emotional reactions. If it exceeds an intensity of 10 phons it may cause permanent deafness. Continuous noise in factories, in working centers and

in agricultural fields diminishes physical capacity, diverts attention and is the cause of accidents during work. Noise of any intensity prevents mental concentration of professional persons working with the mind and causes quantitative mental changes. Noise from machines and from similar noisy systems should be controlled by the use of proper devices so as to obtain a greater production and better quality of work and also in order to protect the workers against functional, organic and mental disorders.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

91:2085-2164 (Aug. 2) 1947. **Partial Index**

Fibrosis of Pancreas. S. van Creveld, A van Ormondt and P. Arons. —p. 2091.
*Psychiatric and Neurologic Manifestations of Nicotinic Acid Deficiency. P. S. Eringa.—p. 2099.
*Dangers of External Application of Sulfonamide Preparations in Superficial Skin Lesions. R. Kooij and T. Lups.—p. 2109.
Spontaneous Rupture of Achilles Tendon During Military Training. E. Thomas.—p. 2120.

Psychiatric and Neurologic Manifestations in Nicotinic Acid Deficiency.—Eringa reports on 2 patients who had been in the East Indies and had been in Japanese concentration camps. The multiple neurologic and psychiatric symptoms which they exhibited subsided after treatment with nicotinic acid. Lesions of the digestive tract or of the skin were absent in these patients.

Dangers of External Application of Sulfonamide Preparations.—According to Kooij and Lups the first manifestation of intolerance to external application of sulfonamide preparations is usually an exacerbation of the treated lesion. This is followed by dermatitis, which first appears around the existing lesions, but which may spread over the entire skin. The generalized dermatitis in the beginning is often accompanied by headache, fever and malaise. The dermatitis is generally regarded as an allergic sign. The authors evaluate the patch test, the oral test and the Leftwich skin test. This last test assumes that the hypersensitivity is due to a combination of sulfonamide drugs with proteins. The authors made tests on 217 patients with various skin and venereal diseases and found 11 in whom dermatitis resulted from sulfonamide compounds. They stress that local application is particularly prone to result in dermatitis, and they regard patch tests as most valuable for diagnosis. A final evaluation of the Leftwich test is not yet possible. The hypersensitivity does not always apply to the entire group of sulfonamide compounds. A test dose of 0.5 Gm. should be given or sensitivity tests should be made preparatory to treatment with sulfonamide drugs.

Nordisk Medicin, Gothenburg

34:1413-1456 (June 27) 1947. **Partial Index**

Allergy and Allergic Disposition. K. H. Baagøe.—p. 1413.

Hospitalstidende

*Renal Complications with Combined Sulfathiazole-Fever Treatment of Gonorrhea. O. Riisfeldt.—p. 1419.
Eye Symptoms in Poliomyelitis. P. Kindt and K. Knudtzon.—p. 1422.
Shoemaking as Occupation of Blind. W. Byrn.—p. 1425.
Renal Disorders, Hypertension and Changes in Retina. E. Nielsen. —p. 1434.
Pathogenesis of Retinitis Albuminurica. H. Rønne.—p. 1438.

Hygiea

Examinations of Heart in Norrland Lumberjacks. L. Abramson, C. G. Leczinsky and C. G. Zachrisson.—p. 1443.
Treatment of Whooping Cough with Intramuscular Injection of Blood. Kjell L. Möller.—p. 1445.
Ability of Eye to Compensate for Loss of Vitreous Humor. B. Rosengren.—p. 1447.

Renal Complications in Combined Sulfathiazole-Fever Therapy.—Riisfeldt reports on 2,489 patients with gonorrhea, gonorrheal epididymitis or gonorrheal arthritis, who were given ambulant treatment with sulfathiazole, usually 9 Gm. a day for three days, without resulting renal complications. In the combined therapy the fever was induced by vaccine with simultaneous administration of 10 Gm. sulfathiazole for three days. Grave renal complications with pain in the loins, macroscopic hematuria or anuria occurred in 13 cases. The treatment was discontinued and abundant fluids were administered with oral or subcutaneous sodium bicarbonate. In the 7 patients with hematuria and oliguria diuresis was quickly established and the hematuria disappeared. In 2 patients with anuria ureteral catheters had to be introduced; in 1 diuresis was established; 1 died from uremia. In the twelfth patient hematuria and anuria were due to the precipitation of sulfathiazole concrements in the urinary tract. In the thirteenth case, with anuria, no hematuria and pronounced albuminuria, it is uncertain whether the renal injury depended on precipitation of concrements or whether there was a toxic injury to the kidneys. Two additional cases of toxic renal injury are described. Tests of renal function in 30 patients immediately after the end of fever therapy showed normal clearance values; in most cases there was hypochloremia or subnormal serum chloride values.

35:1457-1494 (July 4) 1947. **Partial Index**

Application of Penicillin Ointment in Ambulant Surgical Practice. K. S. Jørgensen.—p. 1461.

Hospitalstidende

*Colloid Osmotic Pressure in Chronic Hepatitis. M. Bjørneboe, C. Brun and F. Raaschou.—p. 1465.
Pernicious Anemia in Child Aged 14. A. K. F. Jacobsen.—p. 1469.

Finska Läkaresällskapets Handlingar

Disturbance in Sweat Secretion After Sympathectomy as Criterion of Result of Operation and Extent of Denervation. L. Löfgren.—p. 1471.
Polycythemia in Hypernephroma. Epicritical Comment on Case. J. Forsell.—p. 1479.

Hygiea

*Hormonal Substitution Therapy by Hypophysis Implantations Especially in Diabetes Insipidus. Demonstration of Antibody Formation After Repeated Implantations. F. Nystrand.—p. 1481.
Generalized Osteosclerosis in Infant Whose Mother Has Tetany. R. Kostmann and G. Hultquist.—p. 1485.
Symptoms of Brain Tumor in Xanthomatosis. F. Henschen.—p. 1487.

Colloid Osmotic Pressure in Chronic Hepatitis.—Bjørneboe and his associates determined the colloid osmotic pressure in 9 patients with acute hepatitis, 22 with chronic hepatitis and 13 with disorders not affecting the serum proteins. The results indicate that reduction of the colloid osmotic pressure is the most important factor in the pathogenesis of ascites in chronic hepatitis and that portal hypertension plays a subordinate role.

Hormonal Substitution Therapy by Hypophysis Implantations.—Nystrand says that pituitary implants have a definite but usually transitory effect in diabetes insipidus, as shown by 5 cases which he reports and 19 from the literature. Since implanted hypophysis acts only as a temporary hormone depot it is rational to repeat the implantations. In 2 of the 5 cases of diabetes insipidus in which the first and second implantations were successful the third, fourth and fifth, made shortly afterward and from the same species (calf) had a greatly reduced or absent effect. This is interpreted as due to the formation of species-specific antibodies. Implantation from another species (swine) gave good results. In 6 cases in which hypophysis from the calf was implanted in treatment of other diseases intradermal tests showed sensitization to ox albumin. When repeated hypophysial implantation is made implants from different species (calf, swine, sheep) must thus be used, the same kind being applied not more than two or at the most three times.

35:1495-1532 (July 11) 1947. **Partial Index**

Epidemiology of Infectious Mononucleosis. H. Heyeraas.—p. 1495.
Differential Diagnosis and Symptomatology of Pancreatitis. H. O. Lagerlöf.—p. 1500.

Hospitalstidende

*Effect of Psoas Abscess on Kidneys and Urinary Ducts (Hydronephrosis). N. L. Hansen.—p. 1503.

Norsk Magasin for Lægevidenskapen

Treatment of Scarlet Fever: Orientation on Basis of 100 Cases Treated with Penicillin. P. Anchersen.—p. 1509.
Ileus. A. Berg.—p. 1517.

Hygiea

*Experiments Concerning Antigenic Properties of Antibody Globulins. C. G. Hedén.—p. 1519.

Effect of Psoas Abscess on Kidneys and Urinary Ducts (Hydronephrosis).—Hansen says that abscesses in thoracic and lumbar spondylitis can more often be demonstrated roentgenologically than clinically. Direct pyelographic study

shows that psoas abscesses may dislocate the ureters; obstructions to passage of the urine through the ureters may result, with development of more or less decided hydronephrosis. Ten cases of tuberculous and osteomyelitic spondylitis, pelvic osteitis and inflammatory conditions in the lower extremities are reported in which hydronephrosis due to psoas abscess was established by intravenous urography. This method of examination should be applied at the start of the disorder in destructive affections of the spinal column and pelvis and in inflammation of the lower extremities with concomitant abdominal symptoms and be repeated as long as the patients are under control.

Experiments Concerning Antigenic Properties of Antibody Globulins.—Hedén finds that the rate at which agglutinins and antitoxic antibodies disappear from the blood of a rabbit after a period of active immunization can be influenced similarly by injections of the same antibodies obtained from another species of animal and by injections of normal serum from this species. The results seem to support the view that the antigenic property of antibody globulins does not differ appreciably from that of normal globulins.

Pediatría de las Américas, Mexico, D. F.

5:385-448 (Aug.) 1947. **Partial Index**

*Invalidism from Rheumatic Fever. Psychotechnic and Professional Orientation of Patients. J. M. Macera, A. P. Ruchelli and M. Araya. —p. 439.

Invalidism from Rheumatic Fever.—Solution of the problem of invalidism from rheumatic fever depends on the opportunity to orientate the future professional life of the patient. Children with history of the disease should be given advice on professional orientation as soon as they enter high school. A questionnaire was recently sent out to a group of patients whom the authors advised after a psychologic and technical examination several years previously. The degree of cardiac lesion was different in the various patients when they were observed at childhood or adolescence. Seventy-five per cent followed professional advice and are satisfied with their state of health and work. Twenty per cent of the patients work in jobs which are not favorable to their health. They were not able to learn the trade or specialty advised by the authors because of either lack of money to pay or lack of opportunity to enter into a more adequate field of work. Five per cent of the patients worked against medical advice, which resulted in economic failure due to inadequate work. The authors conclude that the state, through the National Department of Social Assistance, should pay for the studies or learning of trades that are adequate for patients with rheumatic fever. The state also should provide laws to protect the patients. The laws should include (1) preference in obtaining adequate work and proper trade in private enterprise and in state departments over normal applicants; (2) recognition of the employers' right not to extend to these patients jobs with indemnities, and (3) the establishment of laws of indemnization of the patients by the state.

Presse Médicale, Paris

55:477-488 (July 19) 1947

Treatment of Poliomyelitis by Miss Kenny's Method. M. Boppe.—p. 477.
*Penicillin and Surgical Treatment of Pulmonary Abscess. M. Iselin, B. Sureau and R. Desmot.—p. 478.
Syphilitic Meningitis with Papillary Stasis. S. Daum and R. Houdart. —p. 479.

Penicillin Treatment of Pulmonary Abscess.—Iselin and his co-workers treated 27 patients between 15 and over 50 years of age who had pulmonary abscess with penicillin. Pneumonotomy was performed on 19 patients. Penicillin, 240,000 to 1,720,000 units, was given by the systemic route before the operation and 2 patients were given a local injection of 30,000 units before the operation. Fifty thousand units of penicillin combined with sulfanilamide were introduced into the cavity of the abscess of all the 19 patients at the end of the operative intervention. Postoperative treatment consisted of local application of 30,000 to 40,000 units of penicillin by means of a small drain in 5 patients but was without any apparent effect; prolonged administration of 120,000 to 200,000 units daily was performed by the systemic route in all the patients, the highest total dose being 2,700,000 units of the drug. Fifteen of the patients (4 aged over 50 and 7 over 40 years) recovered, 3 died within two and one-half months to one year after the operation and 1 was a failure with persistent mild expectoration eighteen months after the operation. Four patients were not operated on but were given 1,800,000 to 9,790,000 units of penicillin (in two series); 2 of these recovered, 1 died and 1 was a failure. An additional 4 patients with residual cavities and prolonged suppuration of one to thirteen years' duration after pneumonotomy were treated with penicillin. One patient, aged 55, recovered and 3 died. The penicillin did not modify the percentage of spontaneous cicatrization as compared with patients not so treated. Both the patients with surgical treatment and the patients not so treated were benefited by the penicillin therapy, while 11 of 45 patients with pulmonary abscess died who were operated on between January 1938 and December 1944 and were not treated with penicillin.

55:541-552 (Aug. 16) 1947

*Dry Hypertension in Course of Addison's Disease Treated with Desoxycorticosterone Acetate. L. de Gennes, H. Bricaire, Gerbaux, M. de Fossey.—p. 541
*Hypotensor Principle Different From Histamine and Acetylcholine Demonstrated in Carotid Gland of Human Beings. L. Leger, J. L. Parrot and P. Gley.—p. 542.

Hypertension from Desoxycorticosterone Acetate in Addison's Disease.—De Gennes and his co-workers treated Addison's disease in 3 men and 1 woman with subcutaneous injections of desoxycorticosterone acetate in oil. In all the patients pellets of crystalline desoxycorticosterone acetate were subsequently implanted. A pronounced increase in blood pressure of the essential hypertension type independent of water retention resulted after the subcutaneous implantation of the pellets of crystalline desoxycorticosterone, although blood pressure had remained normal after the subcutaneous injections of the drug. A loss in weight often occurred simultaneously with the increase in blood pressure. Edema did not occur. The hypertension was exaggerated by effort, fatigue and emotional strain. It was permanent, progressive and paroxysmal at intervals. Cardiac decompensation and renal insufficiency developed in 3 of the patients. History revealed the occurrence of an acute edematous nephritis in only 1 case. Hypertrophy and hypersecretion of the adrenal cortex may be caused in normal persons by emotional strain, cold or fatigue. It is suggested that this hypersecretion may likewise be caused by the overdosage of desoxycorticosterone, since in some cases the course of hypertension resulting from treatment with desoxycorticosterone resembles that of spontaneous malignant hypertension. Thorough renal examination should always precede treatment of Addison's disease with desoxycorticosterone, particularly by implantation of crystalline pellets.

Hypotensor Principle in Human Carotid Gland.—Leger and his co-workers removed a paraganglioma from the carotid gland of a woman aged 48 whose arterial tension was 120 systolic and 80 diastolic. A drop in blood pressure resulted from an injection of an extract of this tumor into the jugular vein of rabbits which were anesthesized with urethane. The hypotensive effect of the injection of the extract persisted after atropinization, which proved that this effect had not been produced by acetylcholine.

Rivista d. Istituto Sieroterap. Italiano, Naples

23:53-128 (April-June) 1947. **Partial Index**

*In Vitro Researches on Antibacterial Effects of Penicillin in Cerebrospinal Fluid. E. Comolli.—p. 91.
*Simple Method for Determination of Microbial Production of Acetylmethylcarbinol. G. C. Salmoiraghi.—p. 125.

Antibacterial Effect of Penicillin in Cerebrospinal Fluid.—Comolli found that normal cerebrospinal fluid has a bactericidal effect in vitro on pneumococci and staphylococci. The effect disappears if the concentration of proteins in the

cerebrospinal fluid is increased. Penicillin in vitro has a bactericidal action on meningococci, pneumococci and staphylococci cultured in cerebrospinal fluid of increased protein concentration.

Microbial Production of Acetylmethylcarbinol.—Salmoiraghi describes an improved technic of Lemoigne's method for determination of acetylmethylcarbinol (3-hydroxy-2-butanone) of microbial origin, which is simpler than the original technic and its previous modifications (Kluyver, Donker and Von Hooft) and is reliable in common diagnostic tests, as it preserves unchanged the specificity and sensitivity of the original test.

Revista Médica de Chile, Santiago

75:439-494 (July) 1947

*Rheumatic Valvulopathy. R. Armas Cruz and M. Besoaín Santander. —p. 439.
Sulfamethazine in Treatment of Pneumonia. R. Valenzuela García and F. Saffie S.—p. 446.
Anal Pruritus. A. Schwartz.—p. 449.
Psychogenic Factors in Bronchial Asthma. Amparo Arcaya.—p. 454.
Benign Lesions of Mammary Glands. A. Urzúa.—p. 459.

Rheumatic Valvular Pathology.—Armas Cruz and Besoaín Santander studied 73 unselected fatal cases of valvular lesions of the rheumatic type. They accounted for 10.8 per cent of the fatalities occurring on the medical service. The average age of the patients was around 37, and there was a slight predominance of women. Nearly 70 per cent of the patients had clinical signs of rheumatic or related diseases. Death took place on an average of about twelve years after the onset of rheumatic disease. There was a predominance of mitral lesions. Necropsy disclosed predominantly polyvalvular lesions. The mitral valve exhibited lesions in 94.5 per cent of the cases, the aortic semilunar valve in 53.5 per cent and the tricuspid in 24.7 per cent. The pulmonic semilunar valve was free from lesions. The mitral valve shows lesions with equal frequency in the two sexes, whereas the aortic semilunar is involved more often in males and the tricuspid in females. Mitral stenosis alone or associated with insufficiency is observed in less than 7 per cent of the men but in nearly half of the women. Cardiac insufficiency was frequent in this series, and from its onset until death there usually elapsed two years and seven months in the patients who were free from septic endocarditis. Bacterial endocarditis was on the whole more frequent in men than in women, death being due to this cause in three fifths of the men. Cardiac insufficiency caused most of the fatalities in women.

Sang, Paris

18:261-324 (No. 5) 1947. **Partial Index**

Problem of Human Leukemias: Considerations on Results of Culture of Bone Marrow "in Vitro." A. Fieschi and G. Astaldi.—p. 261.
Great Autoagglutination of Red Blood Corpuscles. H. Bonnin, J. Dubarry, C. Dulong de Rosnay and P. Lucas.—p. 269.
*Study of Puncture of Lymph Nodes. D. Bakalos and K. Maroutsos. —p. 280.
Spontaneous Reticular Leukemia in Ovariectomized Mouse. Mrs. L. Arvy.—p. 296.

Puncture of Lymph Nodes.—According to Bakalos and Maroutsos, puncture of a lymph node may be of considerable aid in the differential diagnosis of the various types of enlargement of the nodes. The normal cytologic picture of a lymph node does not reveal undifferentiated stem cells, the so-called lymphoblasts. Each type of cell is well differentiated and independent from the structural and functional points of view. In addition to the well known cells in the normal cytologic picture, there may likewise be observed large lymphoid forms which may be distinguished from the so-called lymphoblasts; these types appear as young round cells. They sometimes react independently of the other lymphatic cells. These young round cells may be responsible for lymphosarcoma with large lymphoid cells, for leukemia with large lymphocytes and for Sternberg's leukosarcomatosis. There seems to exist a close relationship between lymphosarcoma and lymphatic leukemia, although it has not been possible to identify definitely these pathologic processes. Puncture of a lymph node may assist in the morphologic study and in the diagnosis of the majority of cases of lymphogranulomatosis and in the diagnosis of metastases of malignant tumors.

Schweizerische medizinische Wochenschrift, Basel

77:727-766 (July 12) 1947. **Partial Index**

*Streptomycin Therapy of Cholangeitis Due to Colon Bacillus. M. Allgöwer and W. Bloch.—p. 728.
Problems of the Country Surgeon. A. Christ.—p. 731.
Osteosynthesis Executed in Bed of Patient for Diaphyseal Fractures of Lower Extremity. P. Decker.—p. 733.
*Therapy of Tuberculous Pleural Empyema. H. Good.—p. 734.
Combat of Traumatic and Surgical Shock During Peace Time. H. Heusser.—p. 738.
Advantages of Intratracheal Anesthesia. W. Krebs.—p. 748.
Ileus After Cesarean Operation. G. Neff.—p. 755.

Streptomycin in Cholangeitis Due to Colon Bacillus.—Allgöwer and Bloch observed a patient with infection of bile passages by the colon bacillus, which had proved resistant to sulfonamide drugs and penicillin. Streptomycin therapy was tried, because this agent reached the bile in bacteriostatic quantities. The presence of an operative biliary fistula permitted a close check on the bacteriologic conditions. The daily dose of streptomycin was 2 Gm. given intramuscularly in divided doses every four hours. After five days of this medication the streptomycin was combined with 6 Gm. daily of a drug of the sulfadiazine series. When a total of 18 Gm. of streptomycin had been given, the antibiotic dosage was discontinued and the sulfadiazine drug alone was continued. During treatment there was evidence of bacteriostasis, such as clearing of the bile, retardation of the broth cultures and reduction in the bacterial count. The general condition improved and the patient gained in weight, but cure was not obtained and colon bacilli persisted in the bile. Five days after cessation of the streptomycin therapy there was a recurrence of septic temperature.

Treatment of Tuberculous Pleural Empyema.—Good thinks that tuberculous empyema is more frequent chiefly as the result of the more extensive employment of intrapleural pneumothorax. The therapy of pure tuberculous empyema must take account of the condition of the lung, the anatomic condition of the pleura, the thoracic wall and the diaphragm. If the lung has been stabilized the empyema cavity can be counteracted by puncture, irrigation and suctioning off of the air. If collapse of the cavitary lung is too recent a selective pulmonary collapse is advisable, and the empyema should be counteracted by conservative measures such as irrigation. If this is not possible, temporary arrest of the diaphragm with pneumoperitoneum may reduce the cavity. If these methods fail it is necessary to resort to plastic measures to collapse the entire involved area. Removal of pus and irrigation are effected by means of aseptic puncture. Drainage is to be avoided in the presence of a purely tuberculous empyema.

77:791-814 (July 26) 1947

Curare: Nature and New Perspective of Old Drug in Modern Surgery. W. Hügin.—p. 791.
*Epidemic Hepatitis with High Lethality in City of Basel in 1946. T. Müller.—p. 796.
Physical and Physicochemical Factors in Cure of Tuberculous Foci in Lungs. A. J. M. Lohman.—p. 802.
Poisoning by Fertilizer "Lime-Nitrogen" (Calcium Cyanamide). A. Jordi. —p. 805.

Epidemic Hepatitis.—According to Müller the virus of epidemic hepatitis was responsible for 57 fatal cases of atrophy of the liver in Basel in 1946. The mortality was extremely high; it was 20 per cent on the average. The morbidity of the epidemic hepatitis was 1.2 per thousand and the death rate 2.44 for ten thousand living persons. In contrast to the rule, adults were predominantly affected by the disease. Death occurred almost exclusively in the adults. Mortality progressed with age. The absolute maximum of fatal cases was observed in the age group between 50 and 59 years. Predisposing and constitutional factors could be demonstrated in one third of the cases. Apart from that, other possible explanations of the high mortality, such as an increase in virulence of the virus, the presence of a different malignant virus of hepatitis and the simultaneous occurrence of other injurious agents of alimentary or infectious type, are mere conjectures.

Book Notices

Cineplasty. By Henry H. Kessler, M.D., Ph.D., Orthopedic and Amputation Consultant to the Office of Vocational Rehabilitation, Newark, N. J. With a foreword by Ross T. McIntire, Vice Admiral (MC), USN, The Surgeon General, United States Navy. Fabrikoid. Price, $6.75. Pp. 201, with 200 illustrations. Charles C Thomas, 301-327 E. Lawrence Ave., Springfield, Ill., 1947.

The casualties of war have refocused interest on the disabled, and probably the most dramatic of this group are the amputees. During the war and since, the story of the veteran amputee has been told so many times in print, in pictures, on the radio and even in the movies that their problem has been fully dramatized. Many are now familiar with the oft-quoted figures—18,000 amputees as a result of the war—over 120,000 civilian amputees during the same period.

This interest and increased understanding has resulted in a research program that has made tremendous strides under the auspices of the Committee on Prosthetic Devices of the National Research Council. Employers have become conscious of the fact that, selectively placed, the amputee is a good workman, and the word rehabilitation has come to have a practical meaning.

Henry H. Kessler's "Cineplasty" has made a real contribution to the program for the amputee. The author goes exhaustively into the complex functions of the upper extremity, graphically describing its growth and development from the most primitive pectoral fin through the successive stages of evolution. The mechanical functions of the upper extremity are also vividly described, with ingenious methods of illustration. There is a detailed chapter on mechanical devices, then an extensive treatise on cineplasty—its history, physiologic and anatomic problems, surgical technics, followed by a section on special cineplastic prosthetic devices. In addition there is a most excellent chapter on plastic procedures designed to produce the maximum function in deformed hands. The entire book is exceptionally well illustrated.

The final chapter, a summary of rehabilitation procedures, forcibly points out the necessity for training, physiologic and psychologic adjustment, vocational guidance, selective placement and vocational training as an integral part of therapy.

Dr. Kessler is eminently qualified to write authoritatively on the subject of the amputee because of his more than twenty years' experience as a member of the New Jersey Rehabilitation Commission, his war experience as chief of the Naval Amputation Center, Mare Island, California, and because of his deep and consuming interest in the disabled.

"Cineplasty" is a book that will be useful not only as a technical handbook for the surgeon but also, because of its simplicity, for the amputee himself. Certainly it should be in the library of every rehabilitation clinic.

Water Supply and Sewerage. By Ernest W. Steel, C. E., Consulting engineer to Instituto nacional de obras sanitarias, Venezuela, Caracas. Second edition. Cloth. Price, $6. Pp. 666, with 264 illustrations. McGraw-Hill Book Co., Inc., 330 W. 42d St., New York 18, 1947.

This is the second edition of a textbook covering in one volume the subjects of water supply, water purification, sewerage, sewage treatment and storm drainage. New material includes a discussion of the principles of chlorination to produce free available chlorine residuals, commonly called break-point chlorination; a summary of recent advances in water softening and corrective treatment of water to prevent corrosion of and deposits in pipes; and, in sewerage, a brief description of high-rate trickling filters, which are a rather recent development. On these high-rate filters both organic and liquid loadings are several times as great as on the standard, or low-rate, filters generally used prior to 1940.

The inclusion of so much material in one volume requires condensation and does not permit lengthy discussions or the presentation of illustrative problems, which are often helpful to the designer and the student. However, as a book for quick reference on good practices, it is excellent. Those interested in preventive medicine will find in the first chapter excellent data on the health benefits to be derived from well-designed and operated water purification plants and on the proper disposal of wastes.

Report of an Expert Committee on the Work of Psychologists and Psychiatrists in the Services. Privy Council Office. Paper. Price, 70 cents; 2s. Pp. 95. British Information Services, 30 Rockefeller Plaza, New York 20; His Majesty's Stationery Office, York House, Kingsway, London, W. C. 2, 1947.

This report from the British Armed Services is a brief statement of what was done during the last war by psychologists and psychiatrists with a series of appendixes outlining activities and procedures. The work of the psychiatrists is summarized and recommendations made as follows:

Conclusions.—1. The scope of service psychiatry has been extended considerably during the war in response to Service needs. The extension has been mainly on the preventive side because of the need to economize in and preserve manpower. To this end the psychiatrists have assisted in measures for (*a*) avoiding waste of time and labor on the training of persons unable to profit sufficiently from it or liable to break down under the conditions of employment; (*b*) preventing breakdown and improving morale, first by placing persons in employment and positions of responsibility suited to their intelligence and temperament and, second, by the recognition of early or premonitory symptoms or signs of predisposition and by appropriate preventive action, and (*c*) bringing cases of breakdown under treatment as promptly as possible and reallocating the patients, following recovery, in suitable positions in the services, or in civilian employment.

2. The extent to which these measures have been developed has differed in each of the services as a result of their special requirements and conditions, and the contribution of the psychiatrists has likewise varied. These measures have been generally successful, and the contribution of the psychiatrists has been important and indispensable.

3. The detailed methods employed by psychiatrists have been greatly developed and adjusted in the light of experience, and this process is continuing, the psychiatrists cooperating at all stages with other medical officers, psychologists and executive and administrative officers of the services.

Recommendations.—1. To prevent undue wastage, psychiatrists should make their contribution to the appropriate aspects of selection, classification, training, mental hygiene and morale in the services.

2. In all this work, psychiatrists should collaborate as closely as possible with service psychologists.

3. More satisfactory procedures, in which psychiatrists should take part, should be developed for keeping out of the Forces men and women who are incapable of rendering efficient service on account of psychiatric disability.

4. Recruiting officers and other nonmedical officers concerned should be instructed on the criteria for judging a candidate's suitability for the services. Better "psychiatric' training is needed for those who have the task of referring candidates to psychiatrists.

5. A screening procedure should be adopted whereby suitably trained medical or executive officers or instructors should refer to psychiatrists persons of doubtful mental stability, since it is impracticable and perhaps unnecessary to carry out a psychiatric examination of each candidate.

6. More instruction than at present should be given to medical officers of units on the handling of psychiatric problems and to officers of units, especially combatant, in the psychiatric aspects of man-management and the maintenance of morale.

7. More psychiatrists than are at present available in the services are required to meet current needs and, if they cannot be provided, arrangements should be made to train suitable medical officers for the purpose.

8. Steps should be taken to insure that the medical branches of the services should include after the war regular officers who are closely familiar with the psychiatric procedures that have been developed in selection and other military application since 1939.

9. There should be some recognized meeting ground at which the senior service psychiatrists could discuss common problems and make available to one another the procedure developed in

each Service. To the same end, close contact should be maintained between field psychiatrists in the three services.

10. A central coordinating and statistical section should be established for bringing the civilian Neurosis Centers into closer contact with one another, as far as service patients are concerned, and with the corresponding Service departments.

Their Mothers' Sons: The Psychiatrist Examines an American Problem. By Edward A. Strecker, A.M., M.D., Sc.D. Cloth. Price, $2.75. Pp. 220. J. B. Lippincott Company, 227 S. Sixth St., Philadelphia 5. 1946.

During the past conflict 1,825,000 men were rejected for military service because of psychiatric disorders. Another 600,000 were discharged for similar reasons. Dr. Strecker, who served as special consultant to the Secretary of War and to the Surgeon General of the Army and Navy, fixes the blame for the immaturity of these men on their mothers, who, to quote him, "failed in the elementary mother function of weaning her offsprings emotionally as well as physically." He classifies the "moms" (a term borrowed from Phillip Wylie's essay on motherhood in his provocative "Generation of Vipers") into six categories. The "self-sacrificing," the "ailing," the "pollyanna," the "protective," the "pretty addlepate" and the "pseudointellectual" mom. With numerous anecdotes and illustrations from case histories, the foregoing types are discussed adequately, in a concise, clear style which was meant seemingly to shock the reader into some form of activity.

Dr. Strecker, whose position is that of a serious observer, undoubtedly meant to be objective and scientific. Scientifically his book seems superficial and makes little effort to understand the dilemma of the woman in a sick civilization. The responsibility for the neurotic man is placed at the doorstep of mother, as if she and she alone were the root of all the evil. To be sure a chapter is devoted to the evils of the modern progressive educational system as contributors to the burden that men have to carry; however, the ogre stalking the pages is "mom." The author knows that no simple factor determines the development of neurosis in emotional growth. If anything the causes are overdetermined. Yet the fact that the "moms" are their parents' daughters is neglected. Whatever good this book may have done is vitiated by a questionnaire at the end of it which will exonerate any mother from any feelings of guilt that she may have.

Unto the Least of These: Social Services for Children. By Emma Octavia Lundberg. Cloth. Price, $3.75. Pp. 424. D. Appleton-Century Co., Inc., 35 W. 32d St., New York 1, 1947.

The author provides in this volume a fairly detailed history of the development of child-welfare activities in this country from colonial days to the present. Coming in for particular attention throughout the years following its establishment in 1912 is the work of the United States Children's Bureau. The Social Security Act which became law on Aug. 14, 1935 is credited with incorporating "the first broad provision . . . for participation by the federal government in a unified attack on public-welfare problems by federal, state and local units of government."

In addition to the history of the general development of child-welfare activities the author also discusses trends in child care, the control of juvenile delinquency and the legal basis of sound action; he concludes with a chapter on what lies ahead.

Though this volume was obviously written for social service workers and the style much more closely approaches that of a textbook than that of a historical novel, there is much in it that would be of interest to those physicians whose practice is largely among children.

The 1946 Year Book of Endocrinology, Metabolism and Nutrition. Endocrinology. Edited by Willard O. Thompson, M.D., Clinical Professor of Medicine, University of Illinois College of Medicine, Chicago. Metabolism and Nutrition. Edited by Tom D. Spies, M.D., Associate Professor of Medicine, University of Cincinnati School of Medicine. Fabrikoid. Price, $3.75. Pp. 573, with 85 illustrations. Year Book Publishers, Inc., 304 S. Dearborn St., Chicago 4, 1947.

For the first time discussion of endocrinology in a yearbook series makes its appearance in a new yearbook of endocrinology, metabolism and nutrition. The section on endocrinology provides a discussion of the pituitary gland, the thyroid, parathyroids, adrenals, the pancreas, the testes and the ovaries, and a few miscellaneous topics. This book, like others in the yearbook series, provides a review of the literature and from time to time editorial comment on this review. Its value is determined largely by the editor, and for this task the services of Willard O. Thompson have been secured. Tom D. Spies acts as editor of the section on metabolism and nutrition and has divided the information following the introduction into that relating to pancreas, liver and adrenals; alimentary tract; hemopoietic system; cardiovascular system; the brain and nervous system; reproductive system; dermal, muscular and skeletal systems; relation of nutrition to infection and immunity; malnutrition, and therapy. From time to time ideas may be included in the abstracts which are best at this time left for research workers in the field until further data are collected. Nevertheless, the editors have collected an interesting and stimulating mass of information.

Materia Medica for Nurses. By Lois Oakes, S.R.N., D.N., and Arnold Bennett, M.P.S., Senior Pharmacist, Walton Hospital, Liverpool. Second edition. Cloth. Price, $2.75. Pp. 354. William Wood & Co., Mt. Royal & Guilford Aves., Baltimore 2, 1947.

The contents of this book include a general discussion of drugs and other pertinent material in the introduction; tables of weights and measures; conversion tables and thermometry; a discussion of the prescription; a statement on posology; a discussion of sources of drugs and medicinal substances and of medicinal and pharmacopeial preparations; a classification of common drugs according to their therapeutic action, and special discussions on the sulfonamide compounds, serologic products and poisons and antidotes. This book may have limited use in the United States: Latin terminology is given preference; proprietary names and synonyms are those found in the United Kingdom, and the discussion of poison regulations is concerned with those in Great Britain.

Microbial Antagonisms and Antibiotic Substances. By Selman A. Waksman, Professor of Microbiology, Rutgers University, New Jersey. Second edition. Cloth. Price, $4. Pp. 415, with 34 illustrations. Commonwealth Fund, 41 East 57th St., New York 22; Oxford University Press, Amen House, Warwick Sq., London, E. C. 4, 1947.

The first edition of this book was well received and proved a useful and practical source of information. Revised and brought up to date, the present edition will be even more useful and should be available to all who are interested in antibiotic therapy. The contents include discussions on soils and water basins as habitats of micro-organisms, human and animal wastes, interrelationships among micro-organisms in mixed populations, isolation and cultivation of antagonistic micro-organisms, bacteria as antagonists, actinomycetes as antagonists, fungi as antagonists, microscopic animal forms as antagonists, antagonistic relationships between micro-organisms, viruses and other nonspecific pathogenic forms, the chemical nature of antibiotic substances, the nature of antibiotic action, utilization of antibiotic substances for disease control, microbiologic control of soil-borne plant diseases and the outlook for the future.

Untersuchungen über die Variation und Kovariation der optischen Elemente des menschlichen Auges. Von Sölve Stenström, Med. Lic., Gbg. Akademisk avhandling som med vederbörligt tillstånd av den vitterfarna Medicinska Fakulteten i Uppsala för vinnande av medicine doktorsgrad. Paper. Pp. 104, with 17 illustrations. Appelbergs Boktryckeri A.-B., Uppsala, 1946.

This highly technical treatise concerns work done by the author, over a period of twenty-five years, relative to the optical elements of the human eye. One thousand persons, 315 women and 685 men, had their right eye examined to determine the variation of individual optic elements and the covariation between them. Measurement of the radius of the cornea, the depth of the anterior chamber, the refractive power of the cornea, the refractive power of the lens and the total refractive power of the eye agree with the measurements made by other authorities. However, the author finds a variation of the measurement of the internal axis of the eye. He concludes that the division made by earlier writers, conus eyes and conusless eyes, does not explain the abnormal variation of the internal axis. The work, charts and diagrams are excellent, but because of the extremely narrow field the usefulness of the pamphlet is greatly limited.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

PERSISTENT ALBUMINURIA AND FUTURE PREGNANCIES

To the Editor:—**What can I do to hasten a possible cure in the following case: A 19 year old married woman with an insignificant history of childhood diseases became pregnant and was quite badly nauseated for three months. Her urine and blood pressure were normal. At the six and one-half month period she began to have elevated pressure with albumin. Diet was restricted as to salt and the patient was given high protein. At the seventh month of pregnancy she aborted a stillborn fetus. Since that time her blood pressure has been normal for five months but there is considerable albumin in the urine. There are no casts or blood cells on microscopic examination. Should the protein lost in the urine be replaced by diet or medication? The patient says she is perfectly well and does not see why she cannot have another baby soon. Are there any new drugs that have been of any value in persistent albuminuria?**

John W. Mambert, M.D., Hudson, N. Y.

ANSWER.—The most urgent indication is study of this patient's renal functional reserve. The experience with her first pregnancy suggests a lowered functional capacity: kidneys capable of carrying the physiologic burden up to a certain point but incapable of effective elimination with the greater burden of the last trimester of pregnancy. In such states, repetition of the failure to deliver a live child at term can be expected. It is assumed that the placenta showed premature partial separation and vascular changes greater than should be found at seven and one half months' gestation. Among the data needed to advise her properly regarding the outlook of future pregnancies are (1) renal concentration test (Fishberg), (2) urea clearance test, (3) complete blood cell count, (4) total serum protein, (5) cold pressor test of arteriolar lability and (6) determination as to whether her present proteinuria is orthostatic or not. It is quite possible that there may be an element of orthostatic albuminuria, perhaps unilateral, with otherwise apparent good health. An intravenous pyelogram is indicated. The absence of red blood cells and casts in the urine would not be surprising in an orthostatic albuminuria. Chronic nephritis or nephrosis sufficient to produce a continuing profuse proteinuria would be almost certainly associated with some anemia.

There are no drugs specifically indicated in albuminuria. The protein loss should certainly be replaced by a high protein diet, especially if the blood serum protein is reduced. The nature of the protein fed (milk, eggs or meat) is not particularly significant. Careful studies of the renal function should be carried out at about monthly intervals if this patient does get pregnant again. It is quite possible that she may ignore the physician's advice unless specific objective reasons for delay and therapy are explained to her.

RUPTURE OF EXTENSOR FEMORIS MUSCLE

To the Editor:—**Have you any suggestion for treatment in what seems to be a rupture of the extensor femoris muscle of the thigh in a 48 year old obese woman who is extremely nervous and complains greatly of pain? The belly of the muscle seems to have contracted down to a point just below the center of the thigh where it presents as a hard mass. The injury was sustained two months ago in a bus accident when the patient with several others behind her was thrown violently forward. All movements of the thigh and leg are normal and for this reason and because of her nervousness (probably menopause) I have hesitated to recommend anything but conservative treatment consisting of rest, support with an Ace bandage and diathermy.** **Willis P. Baker, M.D., Santa Ana, Calif.**

ANSWER.—If the rupture of the extensor femoris muscle of the thigh is partial, immobilization by means of a plaster of paris specialist splint applied to the back of the leg and held in place with an Ace bandage may protect the muscle while scar tissue forms to reunite the torn portions. A complete rupture of the extensor femoris muscle will result in rather marked weakness and persistent tenderness, if not actual pain, unless it is treated by open operation. The torn ends of the muscle should be brought together and sutured with strips of fascia taken from the fascia lata of the thigh and reinforced with a few sutures of chromic catgut. In the patient described, the absence of weakness or limitation of complete extension of the leg at the knee would indicate that the rupture is not complete.

CONGENITAL ANOMALIES

To the Editor:—**A young man with a congenital deformity of one hand plans to be married to an apparently normal girl. She is hesitant because she feels that her children might be deformed. Will this deformity show up in their children? Will this deformity have a tendency for future children to have other congenital anomalies?**

Cloyce A. Newman, M.D., Bode, Iowa.

ANSWER.—On the basis of the information which has been supplied it is impossible to estimate the probability that a congenital deformity of the hand will reappear in the offspring of the affected individual. The chance that it would appear would depend on the nature of the deformity and the frequency with which it has appeared among the relatives of the affected individual.

The affected person might have a number of children all of whom would be developed normally. On the other hand there is a considerable chance that at least one offspring will be affected. Practically all, if not all, congenital deformities are genetically determined. This is especially obvious in the case of deformities of the extremities.

The recently published two volume book Human Genetics, by R. R. Gates (New York, Macmillan Company, 1946), which lists and describes many human congenital malformations, might be consulted with profit. A considerable section is devoted to malformations of the extremities.

The children of parents who suffer from congenital malformations may exhibit anomalies of development not appearing in their parents. However, there is a very strong tendency for the defect of the parent to reappear in the child. Statistics indicate that there is one chance in two that the defect in the offspring will be that of the parent (Murphy, D. P.: Congenital Malformations: A Study of Parental Characteristics, with Special Reference to the Reproductive Process, Philadelphia, University of Pennsylvania Press, 1940).

SEVERE DUODENAL ULCER IN ELDERLY MAN

To the Editor:—**A gastroenterostomy is contemplated in a man aged 72 who has had a duodenal ulcer of fifty years' duration, with about five serious flare-ups, which subsided on a restricted diet. Twenty-five years ago a cholecystectomy was done for gallstones, but stones were not found. The gallbladder was not infected. Nothing surgical was done to the ulcer; a modified Sippy diet was followed. About seven years ago the last previous flare-up occurred. In November 1946 chills, fever and sweats occurred, with the appearance of a mass in the normal location of the gallbladder. X-ray examination showed a large ulcer with a narrow channel leading from the ulcer up into the mass, the top of which was about 4 cm. below the skin. This abscess was drained and has now healed. The ulcer is buried in adhesions and dense scar tissue resulting from the cholecystectomy. Attempt at excision of the ulcer or a partial gastrectomy is out of the question. A gastroenterostomy is planned. It is thought that, in view of the patient's advanced age, the probability of ulcer formation at the stoma is greatly diminished. The information that I desire is (1) whether any medical treatment is indicated after the operation, and, if so, what? and (2) a diet list to be followed to meet the condition created by gastroenterostomy.** **M.D., California.**

ANSWER.—A patient aged 72 years with the history given should under no circumstances have any radical surgery. If any surgery is contemplated, gastroenterostomy should be the choice.

The ideal treatment would be:

1. The following diet:

AVOID: Coffee, tea, alcohol in all forms. Tobacco. Fried foods, greasy canned fish, i. e. sardines, smoked fish. Raw fruit and vegetables. Whole grain cereals and breads. Spices and condiments, i. e. mustard, pepper, chili sauce and other condiments. Meat, including poultry. Meat stock soups. Sugar, pie, cake, candy, jelly, syrup, honey and ice cream.

MAY HAVE: (May have only food listed—nothing else). Butter as desired. Enriched cream of wheat, farina, cornmeal. Strained oatmeal, pettijohns. Puffed rice, rice krispies. Rice noodles, macaroni and spaghetti. All plainly cooked without spiced sauces. Enriched white bread toasted, white crackers, melba toast, holland rusk or zwieback. Vegetable milk soup made with puréed vegetables. No meat stock.

Lean fresh water fish broiled, baked or boiled. Whitefish, perch, trout, bass or pike. Cottage and cream cheese in moderate portions. Two eggs daily, either soft cooked, poached, shirred or scrambled over water.

All vegetables to be thoroughly strained as baby foods; use no vegetables with seeds or tough fibers. All fruit to be thoroughly strained as baby foods except canned peach, pear or apricots, which may be taken whole. Fresh strained orange juice daily. Use no berries or syrup of the canned fruit.

Mashed, baked or plain boiled potatoes, without skins, are allowed. Baked custard, simple puddings, gelatin. Milk, buttermilk (if desired), breakfast cocoa, ovaltine, cream. Salt to be used in moderate portions.

ADDITIONAL NOURISHMENT BETWEEN MEALS: 10 a. m.: 8 ounces of milk. 3 p. m.: 8 ounces of milk. Bedtime: 8 ounces of milk, 1 serving of cereal, 1 serving of fruit.

2. A capsule of medication to be given three times a day at meals, to include 15 mg. of phenobarbital, 2.5 mg. of "novatrin" (trade name of the methylbromide of the alkaloid homatropine), 25 mg. of ascorbic acid and 7 mg. of thiamine hydrochloride.

At bedtime a capsule should be given containing 0.3 Gm. of calcium carbonate, 20 mg. of phenobarbital and 2.5 mg. of "novatrin."

Atropine should not be given to patients in this age group without some degree of caution because an acute glaucoma might be precipitated. Neutralization should be with aluminum salts half an hour after the three main meals. Alkalis are contraindicated in this age group because of the ease with which acid base equilibrium of the kidney is disturbed.

As the patient improves such foods as chicken, lamb chops or lean meats may be added. The vegetables sooner or later do not have to be puréed, and the same is true of fruits.

INTERMITTENT CLAUDICATION

To the Editor:—A 63 year old patient with arteriosclerotic peripheral vascular disease has as chief complaint pain in one leg on walking about 100 feet. I have used Depropanex injections, elimination of smoking, alcohol, vitamin preparations and rest but have not been able to obtain improvement. Is there any recent advance in medication which has been found helpful in this type of case?

Hiram Symons, M.D., Westbury, L. I., N. Y.

ANSWER.—Insufficient information is included in the inquiry to permit a definite diagnosis. However, it is probable that there is evidence of impaired arterial circulation to the lower extremities, particularly to the leg in which there is pain, and it is probable that the distress is that characterized by the term intermittent claudication. This is not a disease but a symptom of impaired arterial circulation. It is comparable to the distress characterized by the term angina pectoris and is as resistant to treatment. Under the most favorable circumstances all that can be accomplished is amelioration of the symptom, and if adequate doses of "depropanex" do not increase the distance which the patient can walk before he has pain it is improbable that anything will. Occasionally sympathectomy improves intermittent claudication, but this is by no means constant. There have been some reports on the efficacy of cytochrome C, but this new material has not been thoroughly evaluated. It is well to remember that one should not concentrate on the symptom to the exclusion of consideration of the basic disease. The program of treatment outlined seems satisfactory, although it is improbable that vitamins would be of any value. The subject is discussed in detail in the monograph by Allen, E. V.; Barker, N. W., and Hines, E. A., Jr.: Peripheral Vascular Diseases, Philadelphia and London, W. B. Saunders Company, 1946.

CAUSE OF GRINDING TEETH

To the Editor:—What are the causes of grinding teeth in an apparently healthy child aged 9 months with normal growth and development? How can this be stopped?

Captain, M. C., Pueblo, Colo.

ANSWER.—Tooth grinding is a nervous habit of the same nature as nail biting, thumb, lip or tongue sucking and hair pulling. These usually are caused by emotional tensions. In a baby of 9 months one would expect to find the adjustment difficulty in such basic functions as eating, sleeping or neuromuscular activities. If he has an appetite or sleep problem, it should be adjusted. See that the baby gets a chance to use his developing muscles in any way he can. Make every effort to make his daily routine less rigid and give him individual attention. As a rule, the habit passes off fairly promptly under such management.

SENILE MACULAR DEGENERATION

To the Editor:—Would you be good enough to detail for me the therapy of senile macular degeneration?

M.D., New York.

ANSWER.—Senile macular degeneration, as the name implies, is a degenerative disease for which there is no acceptable treatment. This condition is frequently confused with a central chorioretinitis on an allergic basis; when there are fresh hemorrhages present, as seen in the latter condition, rutin 160 mg. daily, "pyribenzamine" 150 mg. daily and saturated solution of potassium iodide 10 drops three times a day is the treatment. True senile macular degeneration does not have hemorrhages, and no treatment is given. The patient can only be assured that he will not go completely blind, as a peripheral vision will not be lost.

LESION INVOLVING NERVE SUPPLY OF EXTREMITY, BLADDER AND PENIS

To the Editor:—A man aged 35 at the time of operation in January 1944 had a complete colectomy in four stages because of multiple polyposis with carcinomatous degeneration. Convalescence from the operation was uneventful. The ileostomy has been functioning since then without difficulty. About fifteen months postoperatively he began complaining of inability to have a sustained penile erection and also of low back pain, with some radiation to the posterior aspect of the right thigh. The penile difficulty was not influenced by a course of testosterone. An x-ray of the spine and pelvis was unrevealing. The low back pain has persisted and has gradually got worse, and in the fall of 1946 he began having difficulty in urinating and had some incontinence. Examination by a urologist led to the belief that the condition was a so-called "neurologic bladder." It was felt at this time that the presacral plexus had been disturbed at the time of the operation or that the subsequent scar tissue formation may have been causing his difficulty. In January 1947 the patient had two subarachnoid alcohol injections, the first with almost complete relief of back pain and the second with perhaps only 20 to 30 per cent relief. Since then his low back pain has been worse; his urinary and sexual symptoms have continued. He has saddle anesthesia and walks with his right foot swinging out, owing apparently to paralysis of the internal rotators of the right thigh. Physical examination shows no evidence of recurrent carcinoma. I should like a suggestion for relief of this man's pain. Would a chordotomy offer him relief and, if so, what are the chances of success, what complications might ensue and, if successful, would he be able to continue at his occupation?

M.D., Maryland.

ANSWER.—It would seem obvious that this patient is suffering from some lesion involving the nerve supply of the right lower extremity and the bladder and penis. The nature of that is not revealed by the evidence presented. Whether it is the result of metastatic carcinoma or of some more benign lesion will have to be determined by further investigation. Certainly no treatment should be directed toward relief of the condition until every effort has been made to determine the underlying cause and to relieve it if possible. It is entirely possible that the man has a tumor of the cauda equina in the lumbar portion of the spinal canal. The patient should be referred to a competent neurologist or neurologic surgeon for a complete investigation and possible treatment of his condition. The difficulties described could not have resulted from involvement of the presacral plexus.

TREATMENT OF THYROTOXICOSIS

To the Editor:—I contemplate treating with thiouracil a patient who has moderate thyrotoxicosis. Her white blood cell count at present is 4,000 with 43 per cent lymphocytes and 57 per cent polymorphonuclears. Do you think this drug is contraindicated in such a case because of the low white blood cell count?

Gerson Faden, M.D., Barnesboro, Pa.

ANSWER.—A slightly low white blood cell count is often seen in patients with thyrotoxicosis, and the number of white blood cells varies in the same patient from time to time. It would therefore probably be safe to try treating the patient with thiouracil provided the white blood cell count is determined at frequent intervals. It would be preferable to use propyl-thiouracil if this drug is available because it is less likely than thiouracil to cause leukopenia.

PITUITARY IRRADIATION

To the Editor:—In The Journal, August 30, page 1578, the answer to a query concerning the treatment of amenorrhea read as follows: "If endocrine therapy fails, x-ray therapy may be applied to the pituitary gland. Thus far harm has not been reported from this treatment, but in lower animals abnormalities appear in the third and fourth generations following radiation. The treatment is simple."

As the first radiologist who, as far back as 1924, had reported the beneficial results of pituitary irradiation on amenorrhea, I wish to say that the abnormalities in the third and fourth generations mentioned in your reply are the results of a damage to the genes localized in the ovaries and testicles of the Drosophila flies—the "lower animals" referred to in your reply. An allusion to the abnormalities in connection with the irradiation to the pituitary gland—as well as to the irradiation of any other part of the body besides that of the sexual glands—is out of place.

Jonas Borak, M.D., New York.

EARLY GLAUCOMA

To the Editor:—A general practitioner asked a question concerning glaucoma. The reply, "Early Glaucoma," under Queries and Minor Notes in The Journal, August 23, page 1515, does not answer his question and is misleading and ambiguous. Several signs but no symptoms are mentioned. It is probably not agreed among ophthalmologists that enlargement of the blind spot is the first sign of glaucoma. Even if that is true it is not of prime importance to a general practitioner. The second sentence does not say whether "loss of vision" is loss of day vision, night vision, visual acuity or visual field. Finally, it is doubtful whether most eye surgeons decide on operative measures merely "as soon as central fields begin to get worse," nor can they claim that the operations are "quite uniformly successful." I suggest that this question be reassessed and reanswered in another issue of The Journal.

Clement McCulloch, M.D., Toronto, Canada.